FARFISA

# electronic organ model 5230 R

# schematic diagram

1st EDITION

**IMPORTANT:** IN ANY CORRESPONDENCE CONCERNING THIS INSTRUMENT ALWAYS INCLUDE MODEL AND SERIAL NUMBERS!

PARTS ORDERING – When ordering parts be sure to include the following information:

1. Model and serial Number of instrument.
2. Part Code.
3. A description of the Part.
4. Specify how you want the part shipped.

FARFISA COMPANY - WHOSE POLICY IS CONSTANTLY DIRECTED TO IMPROVEMENTS AND NEW DEVELOPMENTS - RESERVES THE RIGHT TO CHANGE SPECIFICATIONS, DESIGNS, PRICES, MODELS AND TO DISCONTINUE MODELS WITHOUT NOTICE AND LIABILITY.

## BLOCK DIAGRAM

PEDAL KEY SWITCHES
PEDAL GATES
BASS FILTER
GENERATORS
U.M. GATES
FLUTE FILTERS
VIBRATO
U.M. KEY SWITCHES
U.M. GATES POLI
POLI FILTERS
L.M. KEY SWITCHES
L.M FILTERS
BASS MONOPHONIC
EASY CHORD
RHYTHMS UNIT
GEN. MONO
MONO MONOPHONIC
MONO FILTERS
VIBRATO
WHA-WHA FILTERS
MIXER
MIKE RECORD
EXT. IMPUT.
DELAY LINE
MIXER
CROSSOVER
REVERBER
MIXER
CROSSOVER
MIXER
CROSSOVER
MIXER
MIXER
VOLUME CONTROL
SWELL PEDAL
VOLUME CONTROL
AMP. BASS
AMP. TREBLE
AMP. LESLIE
MIXER
MAIN
EXT. AMP.
LESLIE
EXT. AMP.
PA-730 6844/1481741
SWITCHES HEADPHONE - LOUDSPEAKERS
SOCKET C.B.S.
HEADPHONE
4 Ω
4 Ω
1 μF
4 Ω
4 Ω
POWER SUPPLY

## VIBRATO

5007/1124771 (PA-784)

5023/1124771 (PA-791)

FROM DWG 5
VIBRATO DELAY
SLOW FAST
VIBRATO
TO DWG 7
TO DWG 4
+12V
2,2n Cv17
120K Rv41
3,9K Rv43
100K Rv45
Qv10
100 μF 15WV Cv21
1 μF-25WV Cv16
1 μF-25WV Cv15
1 μF-25WV Cv18
Qv9
10 K Rv37
5 K LIN VRv4
47K Rv40
22K Rv42
470pF Cv20
Rv46
1K Rv47
27K Rv48
120K Rv49
68K Rv38
33K Rv39
10μF 25WV Cv19
470Ω Rv44
Qv11

FROM DWG 4
+5V
47n Cd3
10Ω Rd2
100Ω VRd1
PITCH
100Ω LIN
47K Rd3
150 pF Cd1
1,8K 2% Rd4
220Ω Rd7
Dd1
Dd2
1K Rd9
470 pF Cd6
Qd1
150 pF Cd2
22K Rd8
47K Rd6
1,8K 2% Rd6

## OSCILLATOR

## TONE GENERATOR

220n Cd4
I.C.d1
220n Cd5
-15V

| NOTE | FREQUENCY |
|---|---|
| C°8 | 4436 Hz |
| D8 | 4700 Hz |
| D°8 | 4976 Hz |
| E8 | 5272 Hz |
| F8 | 5588 Hz |
| F°8 | 5920 Hz |
| G8 | 6272 Hz |
| G°8 | 6644 Hz |
| A8 | 7040 Hz |
| A°8 | 7458 Hz |
| B8 | 7902 Hz |
| C9 | 8372 Hz |

6047/1124771 (PA-733/8)

## POWER SUPPLY

230 Vac
117 Vac
1,6 A FUSE S.B.
3-2/10 A FUSE S.B.
Co9 100n 250Vac
T-1113
Black
Blue
Brown
Red
WHITE
GRAY
YELLOW
GREEN
Do1
Do2
Do3
2200 μF 63 WV Co1
2200 μF Co2
3A FUSE S.B.
+48V A
+48V B
GROUND
+25V
+5V
-25V
6970/1489001 (PA-821)
I.C.a4
I.C.a3
I.C.a2
I.C.a1
+15 V
+12 V
-15 V
-12 V
GROUND
15Ω 10W R01
15Ω 10W R02
2200 μF 40WV Co3
4700 μF 40WV Co4
330n Co5
100 μF 63WV Co6
4,7μF 50V Ca2
680n Ca1
100n Ca3
100n Ca4
100n Ca5
1 μF 50V Ca6
LESLIE MOTOR
SLOW LESLIE FAST
L FROM DWG 7
M FROM DWG 7
4,7 μF 63V Co7
4,7 μF 63V Co8
100Ω 1/2W R03
100n 250Vac Co10
0,5A 230V
1A 117V
FUSE S.B.
100Ω 1/2W R04
100n 250Vac Co11
FAST
SLOW
FROM DWG 7
D E
TO DWG 7
F
MAIN EXT. AMPL.
LESLIE OUT
INPUT

1-ALL RESISTORS 1/4W UNLESS OTHERWISE INDICATED
2-ALL TABSWITCHES SHOWN IN OFF POSITION
3-ALL KEYSWITCHES SHOWN IN OFF POSITION
4-SEE PARTS LIST FOR COMPONENT PART NUMBERS
5-ALL D.C. VOLTAGES MEASURED TO GROUND WITH A VOLTMETER 20'000Ω/V

| | | |

5011/1124771
(PA-782)

MONOPHONIC
&
EASYCHORD

FROM DWG 3

TO DWG 3

Key down

EASY

Pin 8 IC 14

Pin 12 IC 14

Pin 3 IC 41

Pin 9 IC 35

Pin H IC 20

CKm

Pin 11 IC 29

Pin 1 IC 41

Pin 13 IC 38

Pin 1 IC 30

Pin 1 IC 37

Pin 13 IC 19

Pin 12 IC 27

CK1

CK2

K2 1 2 3 4 5 6 7 8 9 10 11 12
Bg Ag Ag Gg Gg Fg Fg Eg Dg Dg Cg Cg

K7 1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H J K L M N

K6 1 2 3 4 5 6
C1 C2 C3

K3 1 2 3 4 5 6
+12V

K4 1 2 3 4 5 6 7 8
B3H B1E B2E B3E

K5 1 2 3 4 5 6 7 8
B2H B1H B1E 4E C B A

| | | | |
|---|---|---|---|
| MOD. 5230R | | GENERAL | |
| CODE SE/259 | DRAWN BY | REVISIONS | |
| | CHECKED BY | DATE | |

DWG 2 OF 7

U.M KEYSWITCHES 5009/1124771 (PA-780)

POLI

FROM DWG 4

TO DWG 4

TO DWG 6

MONO

TO DWG 6

FROM DWG 5

ELUTES

+12V

1F x44

L.M. KEYSWITCHES 5009/1124771 (PA-781)

41K x44

4'H

STOP MEMORY

TO DWG 2

TO DWG 4

8'H

41K x44

6870/1124741 (PA-705/2)

6873/1124741 (PA-706/2)

6873/1124741 (PA-706/2)

6875/1124741 (PA-708)

180K x44 270K x44

5009/1124771 (PA-778)

6874/1124741 (PA-707)

6873/1124741 (PA-706/2)

6873/1124741 (PA-706/2)

6873/1124741 (PA-706/2)

6870/1124741 (PA-705/2)

6873/1124741 (PA-706/2)

6873/1124741 (PA-706/2)

6875/1124741 (PA-708)

6874/1124741 (PA-707)

6873/1124741 (PA-706/2)

6873/1124741 (PA-706/2)

6873/1124741 (PA-706/2)

6874/1124741 (PA-707)

6873/1124741 (PA-706/2)

6873/1124741 (PA-706/2)

6873/1124741 (PA-706/2)

2'2/3

4'

5'1/3

8'

16'

TO DWG 5

+12V

27K x44

Rh1+Rh44

U.M. GATES

FROM DWG 5

I.Ch1÷I.Ch10

100n x10

Ch1÷Ch10

6716/1124661 (PA-612)

PEDALBOARD KEYSWITCHES

PA-358 3HW/1124691

PEDALBOARD FILTERS

I.C. 21

BASS GUITAR FILTER

5012/1124771 (PA-788)

PEDAL 16'

PEDAL 8'

SUSTAIN

BASS GUITAR

EASYCHORD

MEMORY

5022/1124771 (PA-803)

FROM DWG 2

L.M. FILTER 5014/1124771 (PA-789)

½ I.C.F1

½ I.C.F1

DIAP 8'

PICC. 4'

TO DWG 7

6124/1124651 (PA-629)

TO PARTNER 15

BASS FILTER

TO DWG 7

5003/1124771 (PA-790)

FLUTE 8'

FLUTE 4'

DIAP. 8'

PICC. 4'

STRINGS 8'

- ALL RESISTORS 1/4 W UNLESS OTHERWISE INDICATED
- ALL TABSWITCHES SHOWN IN OFF POSITION
- ALL KEYSWITCHES SHOWN IN OFF POSITION
- SEE PARTS LIST FOR COMPONENT PART NUMBERS
- ALL D.C. VOLTAGES MEASURED TO GROUND WITH A VOLTMETER 20'000 Ω/V

MOD: 5230R

CODE: SE/259

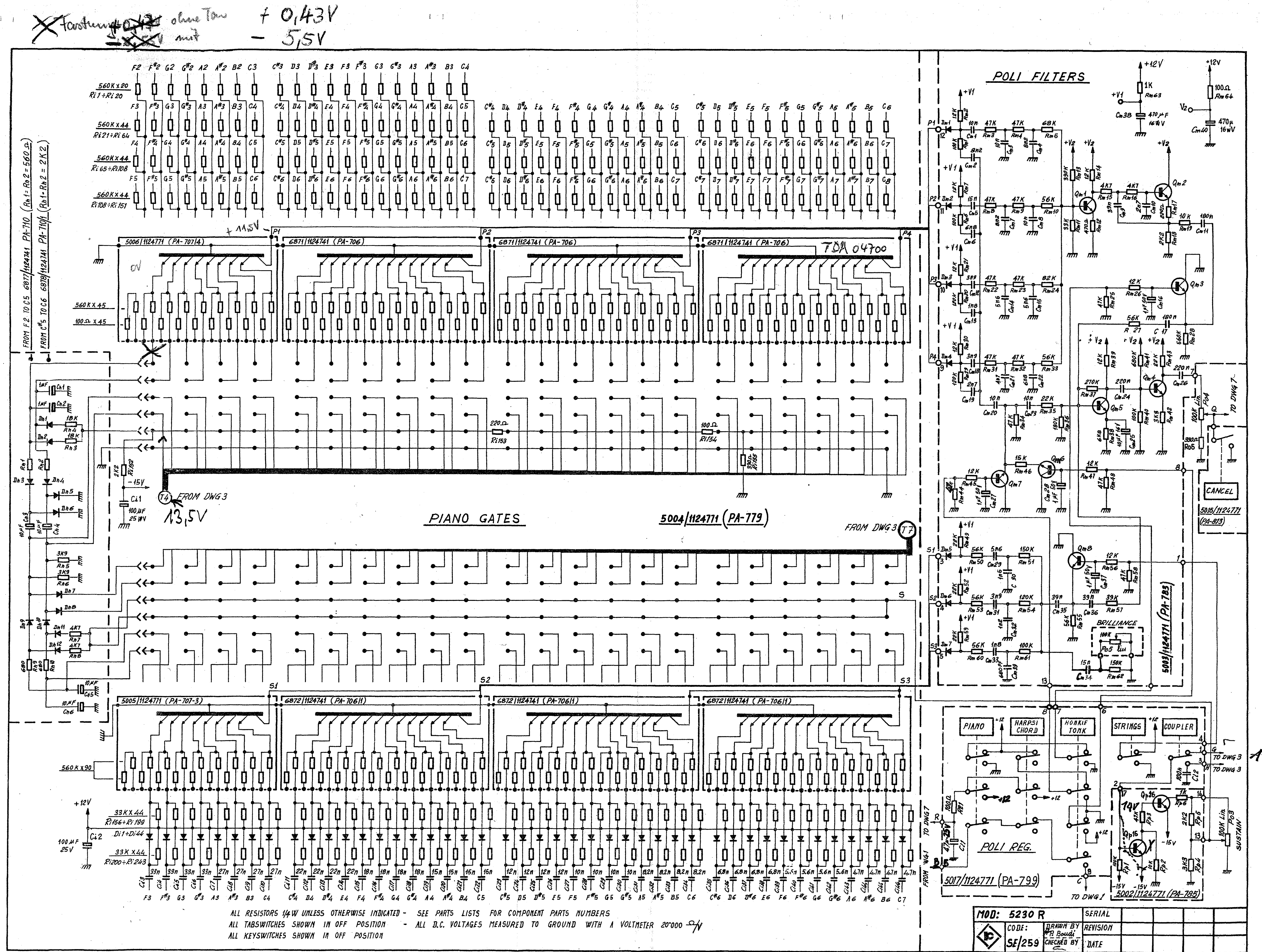
DRAWN BY: M. R. Bonelli

CHECKED BY:

SERIAL N°

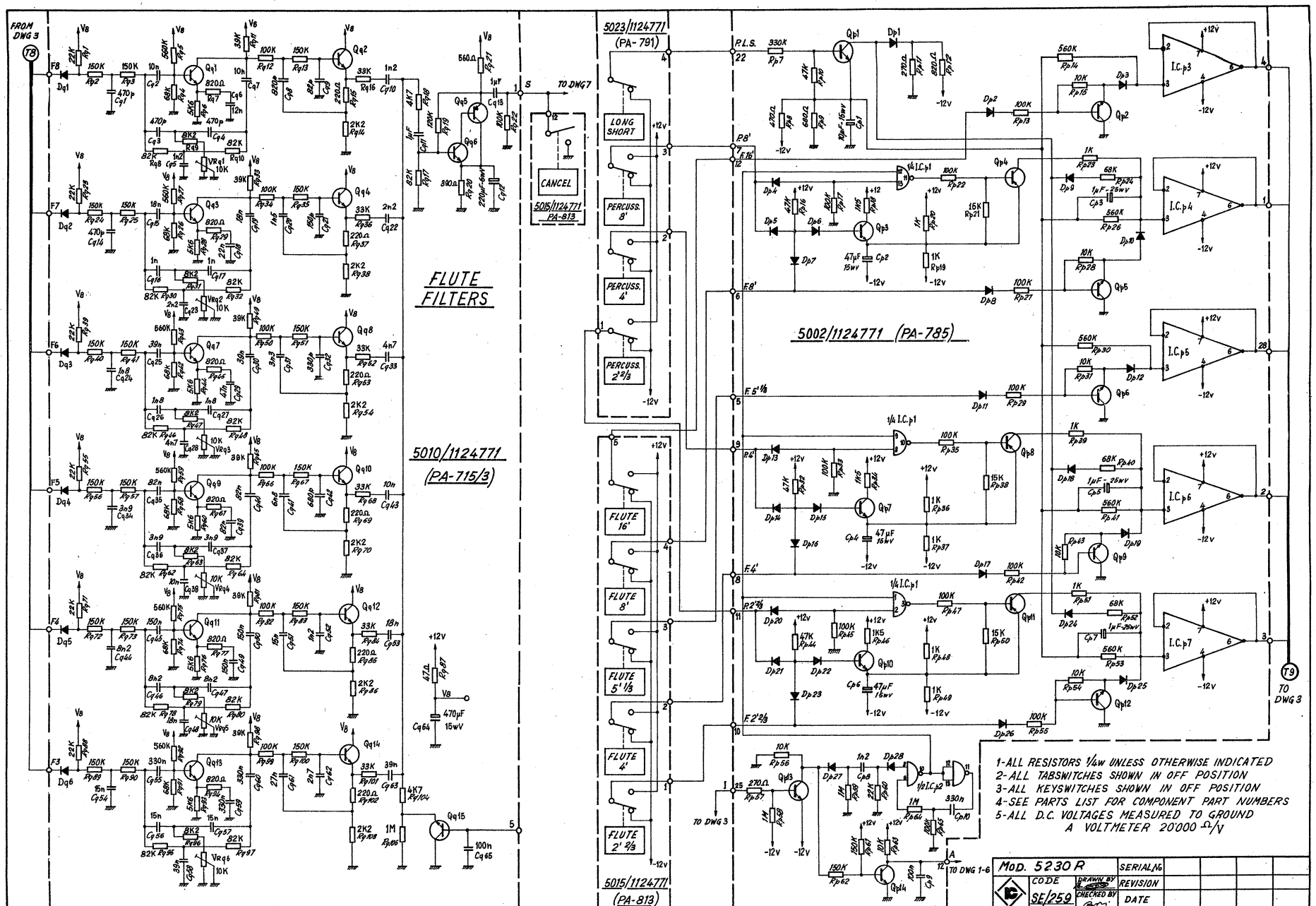
REVISION

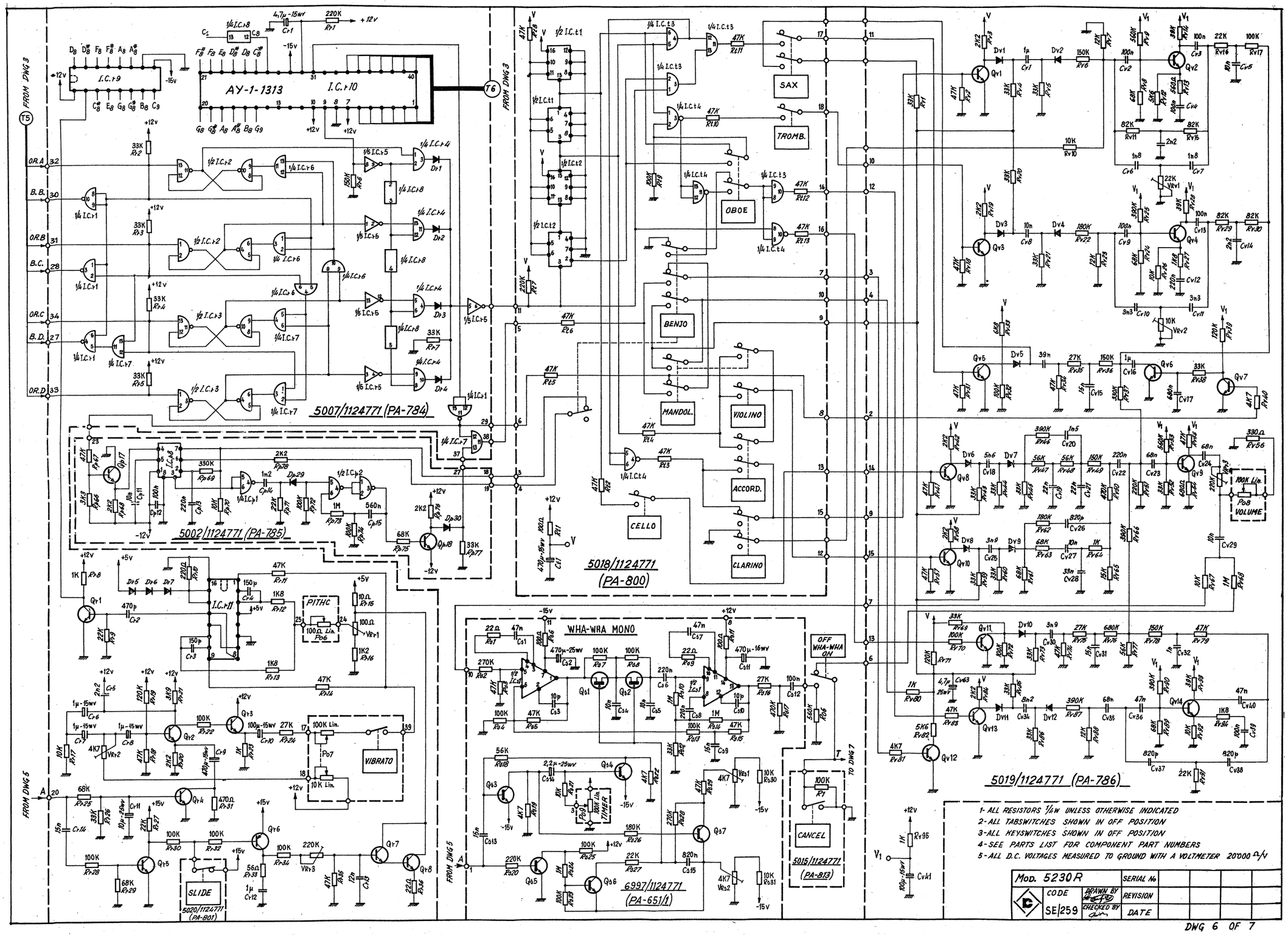
DATE

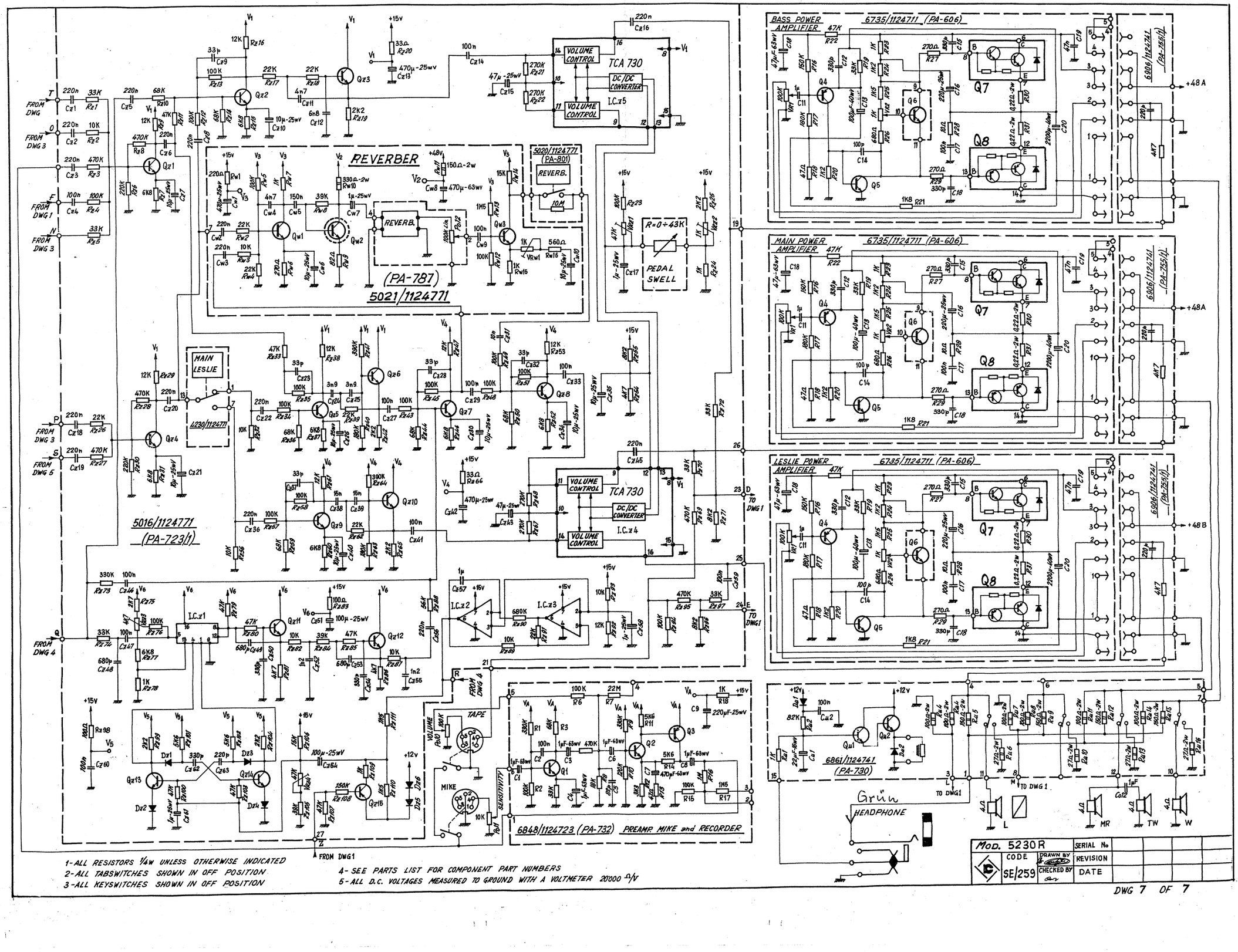


Tastung ohne Ton + 0,43V
mit - 5,5V
POLI FILTERS
PIANO GATES
5004/1124771 (PA-779)
TDA 04700
FROM DWG 3
13,5V
5006/1124771 (PA-707/4)
6871/1124741 (PA-706)
5005/1124771 (PA-707-3)
6872/1124741 (PA-706/1)
FROM F2 TO C5 6877/1124741 PA-710 (Rn1 = Rn2 = 560 Ω)
FROM C#5 TO C6 6878/1124741 PA-710/1 (Rn1 = Rn2 = 2K2)
560K x 20 Ri1 ÷ Ri20
560K x 44 Ri21 ÷ Ri64
560K x 44 Ri65 ÷ Ri108
560K x 44 Ri108 ÷ Ri151
560K x 45
100Ω x 45
560K x 90
33K x 44 Ri156 ÷ Ri199
Di1 ÷ Di44
33K x 44 Ri200 ÷ Ri243
BRILLIANCE
CANCEL
5015/1124771 (PA-813)
5003/1124771 (PA-783)
PIANO
HARPSI CHORD
HONKIE TONK
STRINGS
COUPLER
POLI REG.
5017/1124771 (PA-799)
5002/1124771 (PA-785)
SUSTAIN
TO DWG 7
TO DWG 3
TO DWG 1
FROM DWG 1
14V
ALL RESISTORS 1/4W UNLESS OTHERWISE INDICATED - SEE PARTS LISTS FOR COMPONENT PARTS NUMBERS
ALL TABSWITCHES SHOWN IN OFF POSITION - ALL D.C. VOLTAGES MEASURED TO GROUND WITH A VOLTMETER 20'000 Ω/V
ALL KEYSWITCHES SHOWN IN OFF POSITION
MOD: 5230 R
SERIAL
CODE: SE/259
DRAWN BY P. Boudi
CHECKED BY
REVISION
DATE


DWG 4 OF 7


FROM DWG 3
FLUTE FILTERS
5010/1124771
(PA-715/3)
5023/1124771
(PA-791)
5002/1124771 (PA-785)
5015/1124771
(PA-813)
5018/1124771
PA-813
CANCEL
TO DWG7
TO DWG 3
TO DWG 1-6
LONG SHORT
PERCUSS. 8'
PERCUSS. 4'
PERCUSS. 2 2/3
FLUTE 16'
FLUTE 8'
FLUTE 5' 1/3
FLUTE 4'
FLUTE 2' 2/3
P.L.S.
P.8'
F.16'
F.8'
F.5 1/3
F.4'
F.2 2/3
1/4 I.C.p1
1/2 I.C.p2
I.C.p3
I.C.p4
I.C.p5
I.C.p6
I.C.p7
1-ALL RESISTORS 1/4W UNLESS OTHERWISE INDICATED
2-ALL TABSWITCHES SHOWN IN OFF POSITION
3-ALL KEYSWITCHES SHOWN IN OFF POSITION
4-SEE PARTS LIST FOR COMPONENT PART NUMBERS
5-ALL D.C. VOLTAGES MEASURED TO GROUND
A VOLTMETER 20'000 Ω/V
MOD. 5230R
SERIAL No
CODE SE/259
DRAWN BY
CHECKED BY
REVISION
DATE


5007/1124771 (PA-784)
5002/1124771 (PA-785)
5018/1124771 (PA-800)
5019/1124771 (PA-786)
6997/1124771 (PA-651/1)
5020/1124771 (PA-801)
5015/1124771 (PA-813)
AY-1-1313
I.C.r9
I.C.r10
I.C.r11
WHA-WHA MONO
SAX
TROMB.
OBOE
BENJO
MANDOL.
VIOLINO
ACCORD.
CELLO
CLARINO
PITHC
VIBRATO
SLIDE
CANCEL
VOLUME
FROM DWG 3
FROM DWG 5
TO DWG 7
1- ALL RESISTORS 1/4w UNLESS OTHERWISE INDICATED
2- ALL TABSWITCHES SHOWN IN OFF POSITION
3- ALL KEYSWITCHES SHOWN IN OFF POSITION
4- SEE PARTS LIST FOR COMPONENT PART NUMBERS
5- ALL D.C. VOLTAGES MEASURED TO GROUND WITH A VOLTMETER 20'000 Ω/v
MOD. 5230R
SERIAL No
CODE SE/259
DRAWN BY
CHECKED BY
REVISION
DATE


REVERBER
(PA-787)
5021/1124771
5020/1124771 (PA-801)
REVERB.
10K
TCA 730
VOLUME CONTROL
DC/DC CONVERTER
I.C.z5
I.C.z4
I.C.z3
I.C.z2
I.C.z1
R=0÷43K
PEDAL SWELL
MAIN LESLIE
L230/1124771
5016/1124771 (PA-723/1)
BASS POWER AMPLIFIER
6735/1124711 (PA-606)
MAIN POWER AMPLIFIER
6735/1124711 (PA-606)
LESLIE POWER AMPLIFIER
6735/1124711 (PA-606)
6906/1124741 (PA-735/1)
+48 A
+48A
+48 B
Q4
Q5
Q6
Q7
Q8
6861/1124741 (PA-730)
6848/1124723 (PA-732) PREAMP MIKE and RECORDER
TAPE
MIKE
VOLUME
SENSITIVITY
HEADPHONE
FROM DWG 1
FROM DWG 3
FROM DWG 4
FROM DWG 5
TO DWG 1
1-ALL RESISTORS 1/4W UNLESS OTHERWISE INDICATED
2-ALL TABSWITCHES SHOWN IN OFF POSITION
3-ALL KEYSWITCHES SHOWN IN OFF POSITION
4- SEE PARTS LIST FOR COMPONENT PART NUMBERS
5- ALL D.C. VOLTAGES MEASURED TO GROUND WITH A VOLTMETER 20000 Ω/V
MOD. 5230R
SERIAL No
CODE SE/259
DRAWN BY
CHECKED BY
REVISION
DATE

# 5230R

TRANSISTORS (Q) & DIODES (D) LIST



| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| CHASSIS | POWER SUPPLY CHASSIS (DWG 1/SE 259) | | 8000/1124771 |
| I.C.o1 | Series Stabilizer | LM 309K NATIONAL | W/1214 |
| Do1-Do2-Do3 | Rectifier Bridge | B80C3700 | B/1209 |
| PA 821 | VOLTAGE REGULATOR BOARD (DWG 1/SE 259) | | 6970/1489001 |
| I.C.a1 | Stabilizer + 15 V | LM 7815T NATIONAL | W/1224 |
| I.C.a2 | Stabilizer + 12 V | LM 7812T NATIONAL | W/1223 |
| I.C.a3 | Stabilizer - 15 V | LM 7915T NATIONAL | W/1226 |
| I.C.a4 | Stabilizer - 12 V | LM 7912T NATIONAL | W/1225 |
| PA 606 | POWER AMPLIFIER (DWG 7/SE 259) | | 6735/1124711 |
| Q4 | Preamplifier | BC 154 | W/1500 |
| Q5 | Driver Amplifier | BC 207 A-B | W/1401 |
| Q6 | Temperature Compensator | BC 107 A-B | W/1403 |
| Q7-Q8 | Power Darlington | PHILIPS BDX 62-63<br>MOTOROLA MJ 900-1000 | W/2202 |
| PA 732 | MIXER MAIN-MIKE (DWG 7/SE 259) | | 6848/1124723 |
| Q1 | Mike Preamplifier | BC 209-B red dot | W/1413 |
| Q2 | Mixer Preamplifier | BC 209-B red dot | W/1413 |
| Q3 | Mixer Preamplifier | BC 154 | W/1500 |
| PA 733/8 | TONE GENERATOR (DWG 1/SE 259) | | 6047/1124771 |
| I.C.d1 | Oscillator | SN 29730 N | W/1009 |
| I.C.d2 | Top Octave Synthesizer | AY-1-0212 G.I.E. | W/1105 |
| Qd1 | Buffer | BC 208-B-C | W/1404 |
| Dd1 ÷ Dd3 | Diodes | BA 130 FAIRCHILD | B/1003 |

# 5230 R

TRANSISTORS (Q) & DIODES (D) LIST



| Schem. Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| **PA 784** | **ELECTRONIC MONOPHONIC (DWG 1-6/SE 259) & VIBRATO** | | **5007/1124771** |
| I.C.r1÷I.C.r3 | QUAD 2 - Input NAND Gate | 4011 FAIRCHILD | W/1150 |
| I.C.r5 | Hex Inverter | F 4069 FAIRCHILD | W/1169 |
| I.C.r4-6-7 | QUAD 2 - Input AND Gate | 4081 FAIRCHILD | W/1156 |
| I.C.r8 | Frequency Dividers | 25002 SESCOSEM | W/1165 |
| I.C.r9 | Top Octave Synthesizer | AY-1-0212 G.I.E. | W/1105 |
| I.C.r10 | Priority Latching Circuit | AY-1-1313 G.I.E. | W/1108 |
| I.C.r11 | Oscillator | SN 29730 TEXAS | W/1009 |
| Qr1-5-7-8 | Buffers | BC 209-C | W/1426 |
| Qr2-Qr9 | Vibrato Oscillator | BC 209-B | W/1407 |
| Qr3-Qr10 | Vibrato Buffer | BC 209-B | W/1407 |
| Qr4-Qr11 | Vibrato Delay | BC 209-B | W/1407 |
| Qr6 | Control | BC 154 | W/1500 |
| Dr1 ÷ Dr7 | Diodes | D 525 B TEXAS | B/1000 |
| **PA 782** | **MONOPHONIC & EASYCHORD (DWG 2/SE 259)** | | **5011/1124771** |
| I.C.c1 | 1-OF-10 Decoder | F 4028 | W/1168 |
| I.C.c2-3-4-5 6-7-42-43 | 8 - Input Multiplexer with 3-State Outputs | F 4512 | W/1167 |
| I.C.c9-11-13-28-36 | QUAD Bilateral Switches | 4016 | W/1164 |
| I.C.c8-10-12 | Hex D Flip-Flop | 40174 | W/1161 |
| I.C.c14-16 | QUAD 2 - Input AND Gate | 4081 | W/1156 |
| I.C.c15-17 | Frequency Dividers | 25002 | W/1165 |
| I.C.c16-38-41 | Hex Inverters | F 4069 | W/1169 |
| I.C.c18-24 | Dual 1-OF-4 Decoders | F 4555 PC | W/1171 |
| I.C.c19-21-27-30-40 | QUAD 2 - Input NAND Gate | 4011 | W/1150 |
| I.C.c20-35-39 | Triple 3 - Input NAND Gate | 4023 | W/1152 |
| I.C.c22 I.C.c23 | 4 Bit Syn UP-DOWN Binary Counters | 40193 | W/1162 |
| I.C.c29 | Dual 4 Bit Static Shift Register | F 4015 PC | W/1170 |
| I.C.c31-32-33-34 | Dual D Flip-Flop | 4013 | W/1157 |
| I.C.c37 | Dual JK Flip-Flop | 4027 | W/1153 |
| I.C.c25 | Hex Inverting Buffer | 4049 | W/1155 |
| Dc1 ÷ Dc32 | Diodes | D 525 B TEXAS | B/1000 |

# 5230 R

TRANSISTORS (Q) & DIODES (D) LIST



| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 781 | KEYSWITCH BOARD L.M. (DWG 3/SE 259) | | 5008/1124771 |
| D1 ÷ D25 | Diodes | D 525 B | B/1000 |
| PA 780 | KEYSWITCH BOARD U.M. (DWG 3/SE 259) | | 5009/1124771 |
| D1 ÷ D131 | Diodes | BA 130 FAIRCHILD | B/1003 |
| PA 612 | SUSTAIN PEDALBOARD (DWG 3/SE 259) | | 6716/1124661 |
| I.C.g1 | Divider | G.I.E.AY-1-5050 | W/1100- W/1101 |
| Qg1 | Pulse Amplifier | BC 208-B-C | W/1404 |
| Qg3 - Qg6 | Buffers | BC 209-B | W/1407 |
| Qg7 | Modulator | | |
| Qg2 | Reset | BC 287 | W/1702 |
| Qg4 | Preamplifier | BC 209-B red dot | W/1413 |
| | | BC 109-B red dot | W/1415 |
| Qg5 | Bass Guitar Filter | BC 209-B | W/1407 |
| Dg1 ÷ Dg13 | Diodes | D 525 B-BA 130 | B/1000- B/1003 |
| Dg14÷Dg26 | Diodes | 1N 914 - 1N 4148 | B/1002 |
| Dg27÷Dg33 | Diodes | D 525 B-BA 130 | B/1000- B/1003 |
| PA 778 | U.M. GATES (DWG 3/SE 259) | | 5000/1124771 |
| I.C.h1÷I.C.h10 | Frequency Dividers | SA 1005 ITT | W/1114 |
| PA 705/2 | GATE MODULE (DWG 3/SE 259) | | 6870/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| Q1 | Switch | BC 209-B | W/1407 |
| D1 - D2 | Diodes | D 525 B | B/1000 |

| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 706/2 | GATE MODULE (DWG 3/SE 259) | | 6873/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| D 1 | Diode | D 525 B | B/1000 |
| PA 707 | GATE MODULE (DWG 3/SE 259) | | 6874/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| D 1 | Diode | D 525 B | B/1000 |
| PA 708 | GATE MODULE (DWG 3/SE 259) | | 6875/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| D 1 | Diode | D 525 B | B/1000 |
| PA 789 | L.M. FILTERS (DWG 3/SE 259) | | 5014/1124771 |
| I.C.f1 | Preamplifier | SN 76131 red dot | W/1213 |
| Qf1 | Preamplifier Flutes | BC 209-B red dot | W/1413 |
| Qf2 | Strings | BC 209-C SESCOSEM | W/1426 |
| Qf3 | Piccolo | BC 209-C SESCOSEM | W/1426 |
| Qf4 | Preamplifier | BC 209-B red dot | W/1413 |
| PA 779 | PIANO GATES (DWG 4/SE 259) | | 5004/1124771 |
| Di1÷Di44 | Diodes | D 525 B TEXAS | B/1000 |
| PA 706 | GATE MODULE (DWG 4/SE 259) | | 6871/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |

| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 706/1 | GATE MODULE (DWG 4/SE 259) | | 6872/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| PA 707/3 | GATE MODULE (DWG 4/SE 259) | | 5005/1124771 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| PA 707/4 | GATE MODULE (DWG 4/SE 259) | | 5006/1124771 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| PA 710 | SHAPER GATE ENVELOPE (DWG 4/SE 259) | | 6877/1124741 |
| D1 ÷ D12 | Diodes | BA 130 | B/1003 |
| PA 710/1 | SHAPER GATE ENVELOPE (DWG 4/SE 259) | | 6878/1124741 |
| D1 ÷ D12 | Diodes | BA 130 | B/1003 |
| PA 783 | POLI FILTERS (DWG 4/SE 259) | | 5003/1124771 |
| Qm1 | Piano Preamplifier | BC 209-B red dot | W/1413 |
| Qm2 - Qm4 | Preamplifiers | BC 209-B red dot | W/1413 |
| Qm5 | Mixer | BC 209-B red dot | W/1413 |
| Qm3 - Qm6<br>Qm7 - Qm8 | Switches | BC 209-B | W/1407 |
| Dm1 ÷ Dm7 | Diodes | D 525 TEXAS | B/1000 |

# 5230 R

TRANSISTORS (Q) & DIODES (D) LIST

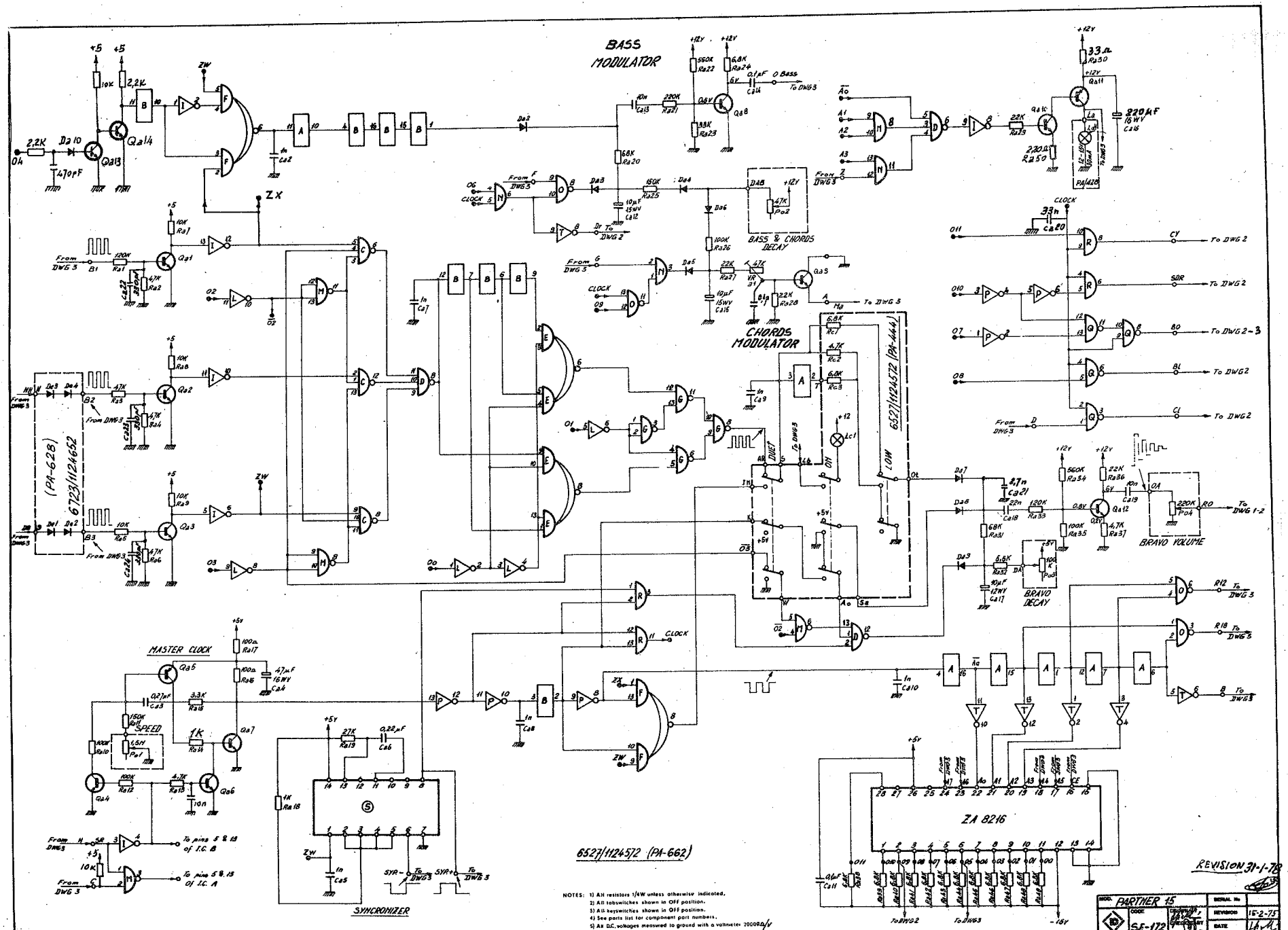


| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 785 | FLUTE & PERCUSSION COMANDS (DWG 4-5-6/SE 259) | | 5002/1124771 |
| I.C.p1-I.C.p2 | QUAD 2 - Input NAND Gate | 4011 | W/1150 |
| I.C.p3÷I.C.p7 | Buffers | SN 72741 P | W/1210 |
| I.C.p8 | Single Timing Circuit | µA 555 | W/1217 |
| Qp1-2-3-5-6-7-9-10-12-13-14-15-16 | Switches | BC 209-B | W/1407 |
| Qp4-8-11 | Switches | BC 154 | W/1500 |
| Qp17 | Buffer | BC 209-B | W/1407 |
| Qp18 | Buffer | BC 207-A-B | W/1401 |
| Dp1÷Dp30 | Diodes | D 525 B | B/1000 |
| PA 800 | SPECIAL EFFECT COMANDS (DWG 6/SE 259) | | 5018/1124771 |
| I.C.t1-I.C.t2 | Dual JK Flip-Flop | 4027 | W/1153 |
| I.C.t3 | QUAD 2 - Input AND Gate | 4081 | W/1156 |
| I.C.t4 | QUAD 2 - Input NAND Gate | 4011 | W/1150 |
| PA 651/1 | WHA-WHA MONO (DWG 6/SE 259) | | 6997/1124771 |
| I.C.s1 | Wha-Wha Mono | SN 76131 White dot | W/1212 |
| Qs1-Qs2 | Dual FET | TIS 70 | W/2001 |
| Qs3-Qs4 | Multivibrator | BC 208-B-C | W/1404 |
| Qs5 | Buffer | BC 208-B-C | W/1404 |
| Qs6 | Switch | BC 208-B-C | W/1404 |
| Qs7 | Pulse Driver | BC 208-B-C | W/1404 |
| PA 786 | SPECIAL EFFECTS (DWG 6/SE 259) | | 5019/1124771 |
| Qv1-3-5-8-10-11-13 | Buffers | BC 209-B | W/1407 |
| Qv2 | Clarinet Filter | BC 209-B | W/1407 |
| Qv4 | Trombone Filter | BC 209-B | W/1407 |
| Qv6-7-12 | Modulators | BC 209-C SESCOSEM | W/1426 |
| Qv9 | Preamplifier Mono | BC 209-B red dot | W/1413 |
| Qv14 | Oboe Filter | BC 209-B | W/1407 |
| Dv1 ÷ Dv12 | Diodes | D 525 B | B/1000 |

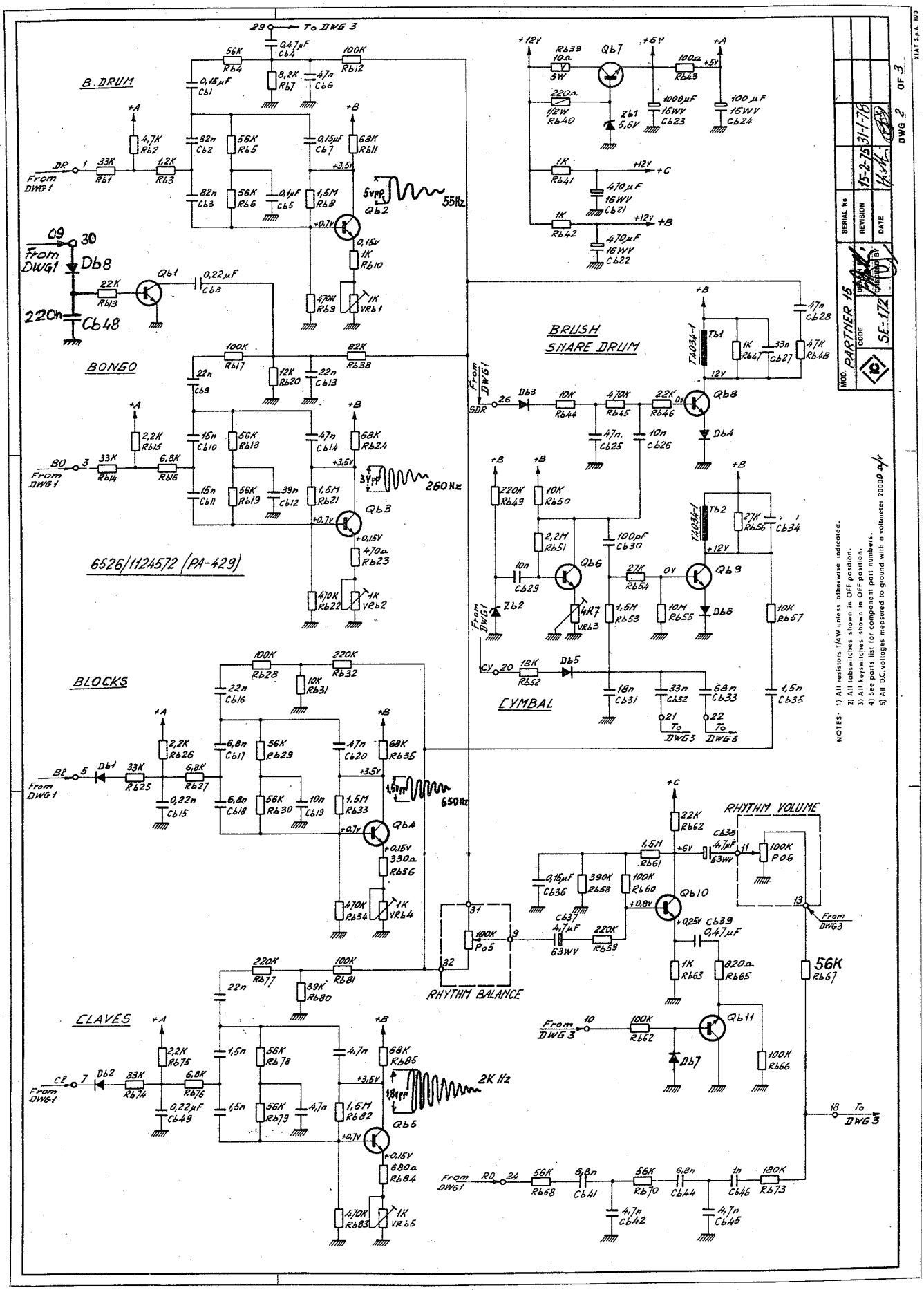
# 5230 R

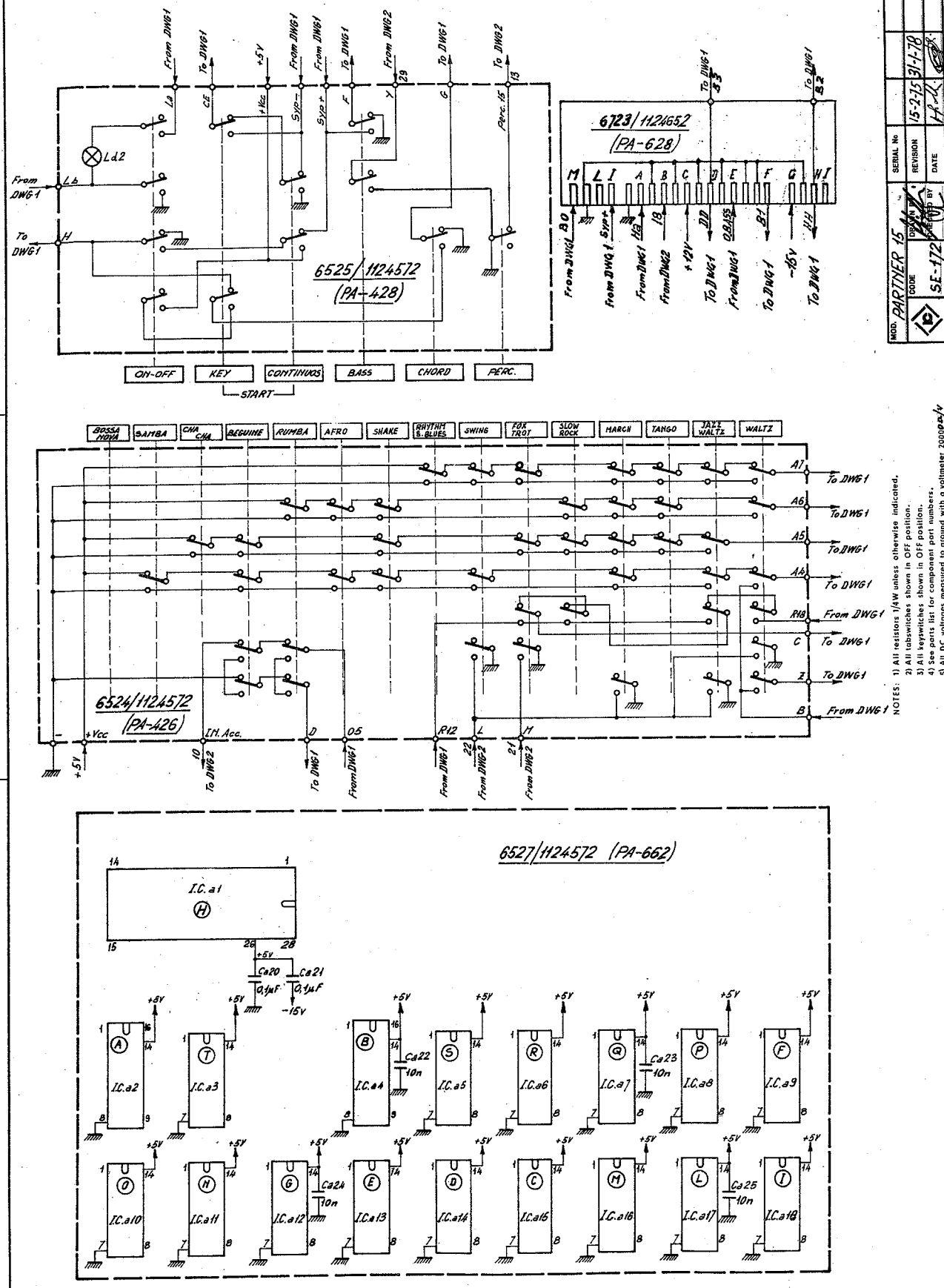
TRANSISTORS (Q) & DIODES (D) LIST (7)

| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| **PA 787** | **REVERBERATION (DWG 7/SE 259)** | | 5021/1124771 |
| Qw1 | Reverb Preamplifier | BC 209-B | W/1407 |
| Qw2 | Reverb Driver | BC 286 | W/1601 |
| Qw3 | Reverb Preamplifier | BC 209-B red dot | W/1413 |
| **PA 730** | **HEADPHONE-LOUDSPEAKER SWITCH (DWG 7/SE 259)** | | 6861/1124741 |
| Qu1 | Darlington | BC 209-B | W/1407 |
| Qu2 | Darlington | BC 286 | W/1601 |
| Du1 - Du2 | Diodes | BA 130 | B/1003 |
| **PA 723/1** | **MAIN-LESLIE PREAMPLIFIER (DWG 7/SE 259)** | | 5016/1124771 |
| I.C.z1 | Bucket Brigade Delay line | TDA 1022 | W/1113 |
| I.C.z2-3 | Oscillators | SN 72741 N | W/1210 |
| I.C.z4-5 | D.C. Volume and Balance Control Circuit | TCA 730 | W/1216 |
| Qz1-4 | Mixer | BC 209-B red dot | W/1413 |
| Qz5-7-8-9-2 | Mixers | BC 209-B | W/1407 |
| Qz3 | Bass Crossover | BC 209-B | W/1407 |
| Qz6 | Treble Crossover | BC 209-B | W/1407 |
| Qz10 | Leslie Crossover | BC 209-B | W/1407 |
| Qz11-Qz12 | Emitter Followers | BC 209-B | W/1407 |
| Qz13-Qz14 | Oscillators | BC 209-B | W/1407 |
| Qz15 | Switch | BC 154 | W/1500 |
| Dz1 + Dz6 | Diodes | BA 130 | B/1003 |
| **PA 715/3** | **FLUTE FILTERS (DWG 5/SE 259)** | | 5010/1124771 |
| Qq1-2-3-4-7-8-9-10-11-12-13-14 | Flute Filters | BC 209-B red dot | W/1413 |
| Qq5 | Mixer Filter | BC 154 | W/1500 |
| Qq6 | Mixer Filter | BC 209-B red dot | W/1413 |
| Qq15 | Chord Modulator | BC 209-B red dot | W/1413 |
| Dq1 + Dq6 | Diodes | BA 130 | B/1003 |




NOTES:
1) All resistors 1/4W unless otherwise indicated.
2) All tabswitches shown in OFF position.
3) All keyswitches shown in OFF position.
4) See parts list for component part numbers.
5) All D.C. voltages measured to ground with a voltmeter 20000Ω/V


B. DRUM
BONGO
BLOCKS
CLAVES
6526/1124572 (PA-429)
BRUSH SNARE DRUM
CYMBAL
RHYTHM VOLUME
RHYTHM BALANCE
MOD. PARTNER 15
CODE SE-172
DWG 2 OF 3
SERIAL No
REVISION
DATE
15-2-75
31-1-76
NOTES: 1) All resistors 1/4W unless otherwise indicated.
2) All tabswiches shown in OFF position.
3) All keyswitches shown in OFF position.
4) See parts list for component part numbers.
5) All DC voltages measured to ground with a voltmeter 20000 Ω/V




NOTES: 1) All resistors 1/4W unless otherwise indicated.
2) All tabswitches shown in OFF position.
3) All keyswitches shown in OFF position.
4) See parts list for component part numbers.
5) All D.C. voltages measured to ground with a voltmeter 20000 ohms/V

MOD. PARTNER 15
CODE SE-172
DRAWN
CHECKED BY
DATE 15-2-75 31-1-78
REVISION
SERIAL No
DWG. 3 OF 3

EIAT S.p.A. 1173

# Model *PARTNER 15* TRANSISTORS (Q) & DIODES (D) LIST ①

| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 662 | CLOCK BOARD (DWG 1-3/SE 172) | | 6527/1124572 |
| Qa1÷Qa3 | Interface transistors..... | BC 208 BC..... | W/1404 |
| Qa4÷Qa6 | Stop Start Control..... | BC 109 B..... | W/1409 |
| Q a 5 | Oscillator..... | BC 154..... | W/1500 |
| Q a 11 | Lamp Driver..... | | |
| Q a 7 | Oscillator..... | BC 208 BC..... | W/1404 |
| Q a 10 | Lamp Driver..... | BC 109 B..... | W/1409 |
| Qa13-Qa14 | Buffers..... | | |
| Q a 9 | Chord Modulator..... | MISTRAL BC 209 C..... | W/1426 |
| Qa8-Qa12 | Preamplifiers..... | BC 209 B..... | W/1407 |
| | | BC 109 B..... | W/1409 |
| Da1÷Da12 | Diodes..... | IX 9809..... | B/1000-B/1001 |
| ICa7-ICa10 | TTL-Quadruple 2-Input Positive Nand Gates | SN 7400..... | W/1000 |
| ICa12-ICa16 | TTL-Quadruple 2-Input Positive Nand Gates | | |
| ICa6-ICa11 | TTL-Quadruple 2-Input Positive and Gates | SN 7408..... | W/1001 |
| ICa3-ICa8 | TTL-Hex Inverters..... | SN 7404..... | W/1004 |
| ICa17-ICa18 | TTL-Hex Inverters..... | | |
| ICa14-ICa15 | TTL-Triple 3-Input Positive Nand Gates | SN 7410..... | W/1005 |
| ICa9-ICa13 | TTL-Dual-2-Wide 2-Input And -or-Invert Gates | SN 7451..... | W/1006 |
| ICa5 | TTL-Restriggerable Monostable Multivibrators with Clear | SN 74122..... | W/1007 |
| ICa2-ICa4 | TTL-Dual 3+1 Flip-Flops with Clear | SN B 748-F..... | W/1008 |
| ICa1 | ROM..... | ..... | W/1102 W/1103 |
| PA 628 | PLUG BOARD (DWG 1-3 / SE 172) | | 6723/1124652 |
| De1÷De4 | Diodes..... | SGS - IX 9809..... | B/1000-B/1001 |

# Model *PARTNER 15* TRANSISTORS (Q) & DIODES (D) LIST



| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 429 | RHYTHM UNIT GENERATOR BOARD (DWG 2 / SE 172) | | 6526/1124572 |
| Q b 1<br>Q b 2<br>Q b 3<br>Q b 4<br>Q b 5<br>Q b 6 | Switch Transistor.....<br>Bass Drum Oscillator.....<br>Bongo Oscillator.....<br>Blocks Oscillator.....<br>Claves Oscillator.....<br>Noise Preamplifier..... | BC 209 - B.....<br>BC 239 - B..... | W/1407 |
| Q b 7 | Stabilizer Transistor..... | BC 286.....<br>SGS FAIRCHILD..... | W/1601 |
| Q b 8<br>Q b 9 | Brush Filter.....<br>Cymbal Filter..... | BC 209 - B.....<br>BC 239 - B..... | W/1407 |
| Q b 11 | Accent Switch Transistor..... | Mistral BC 209 - C..... | W/1426 |
| Q b 10 | Rhythm Preamplifier..... | BC 209 - B red dot.....<br>BC 239 - B red dot..... | W/1413 |
| Db1÷Db8 | Diodes..... | SGS - IX 9809..... | B/1000 - B/1001 |
| Z b 1 | Voltage Reference-Diode Zener (5,6V-400mA) | ITT STANDARD.....<br>MULLARD.....<br>IRCI..... | B/1309 |
| Z b 2 | Noise Generator-Diode Zener.. | IZ-9824..... | B/1600 |

FARFISA
musikinstrumente gmbh
5063 overath
obersteeg
☎ 02207/863

# TECHNISCHE MITTEILUNG

Betr.:
Monosteuerung der Modelle 5230, 5240 und 5240 - IC Nr. 1
auf der PA-857/2

Nach Austauschen des IC 1 setzten Sie bitte, um einer etwaigen Zerstörung vorzubeugen, die Buffer Platine PA- ..... zur Entkopplung des IC 1 an die in der Skizze eingezeichneten Stelle.

Es sind folgende Handgriffe notwendig.

1) Ablöten der Drähte an den Punkten 27, 28 und 30.
Auf diesen Abschlußpunkten löten Sie jeweils die Anschlußbeine der Gatterplatine PA- ..... (Basen der 3 Transistoren).

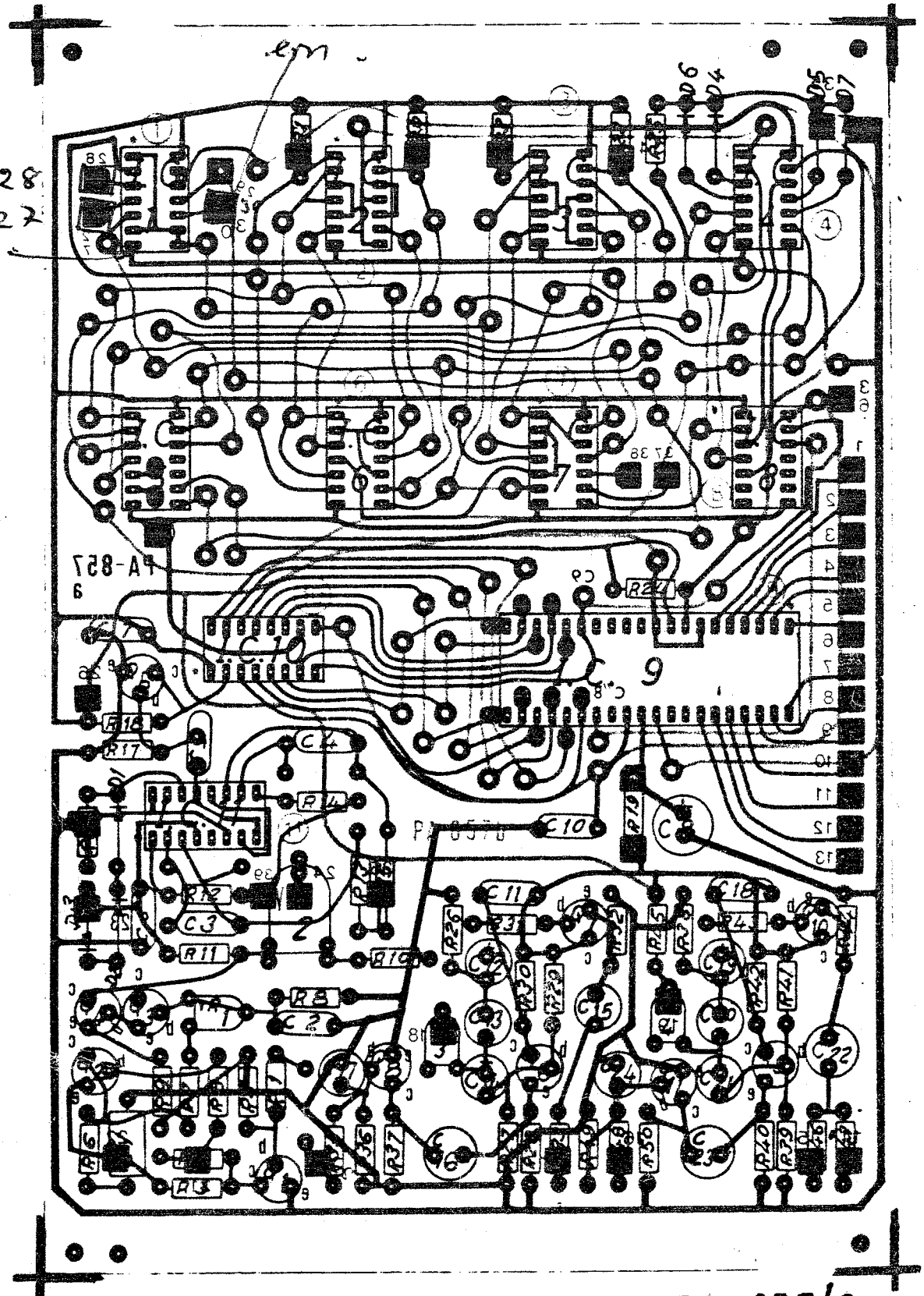
2) Die vorher entfernten Anschlußdrähte löten Sie bitte auf die Punkte 1, 2 und 3 der Gatterplatine.

Die Kollektoren (mit grünem Anschlußdraht versehen) löten Sie an Punkt 7 des IC 1. Siehe Skizze.

FARFISA MUSIKINSTRUMENTE GmbH
Abt. Service
Reuter

Anlage
1 Skizze

Spiegelbild




PA-857/2

sw = schwarz
gr = grau
bn = braun

6E

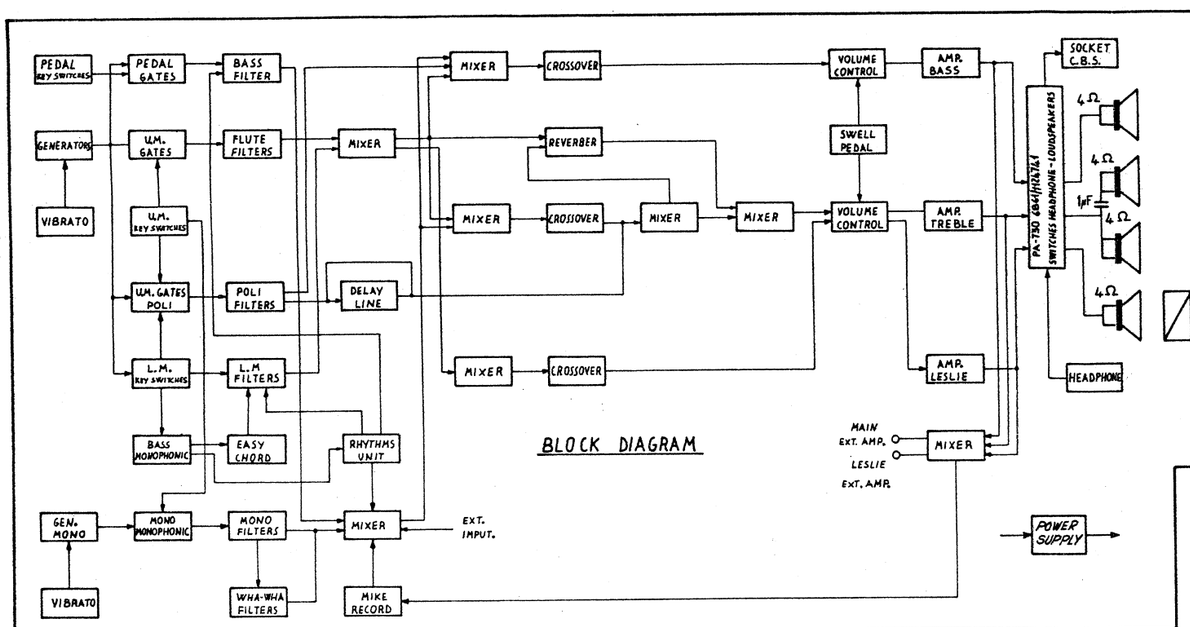
FARFISA

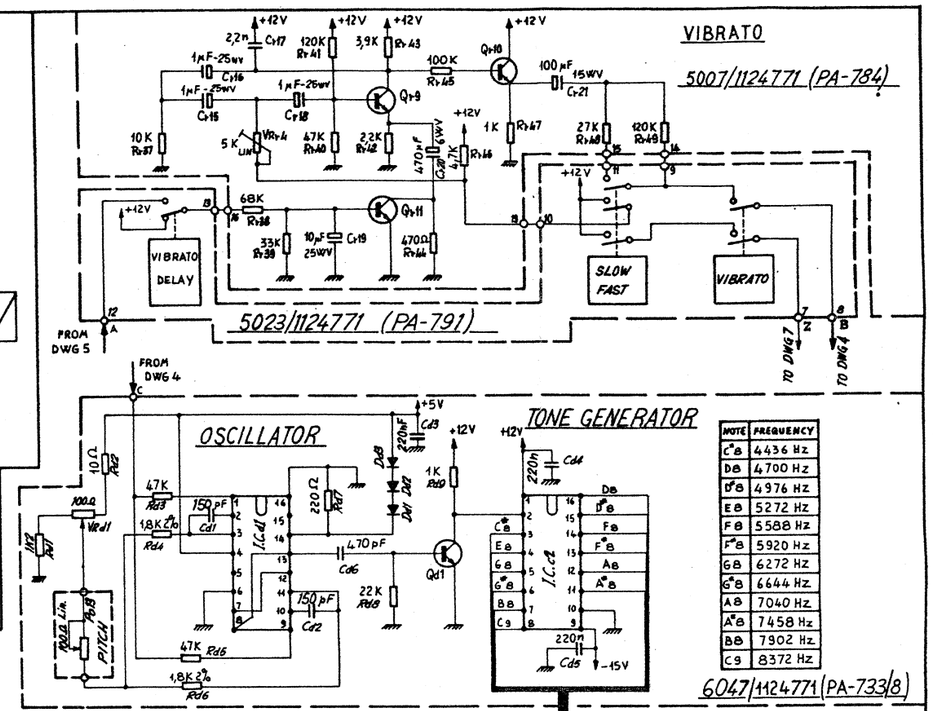
# electronic organ model 5230 R

# schematic diagram

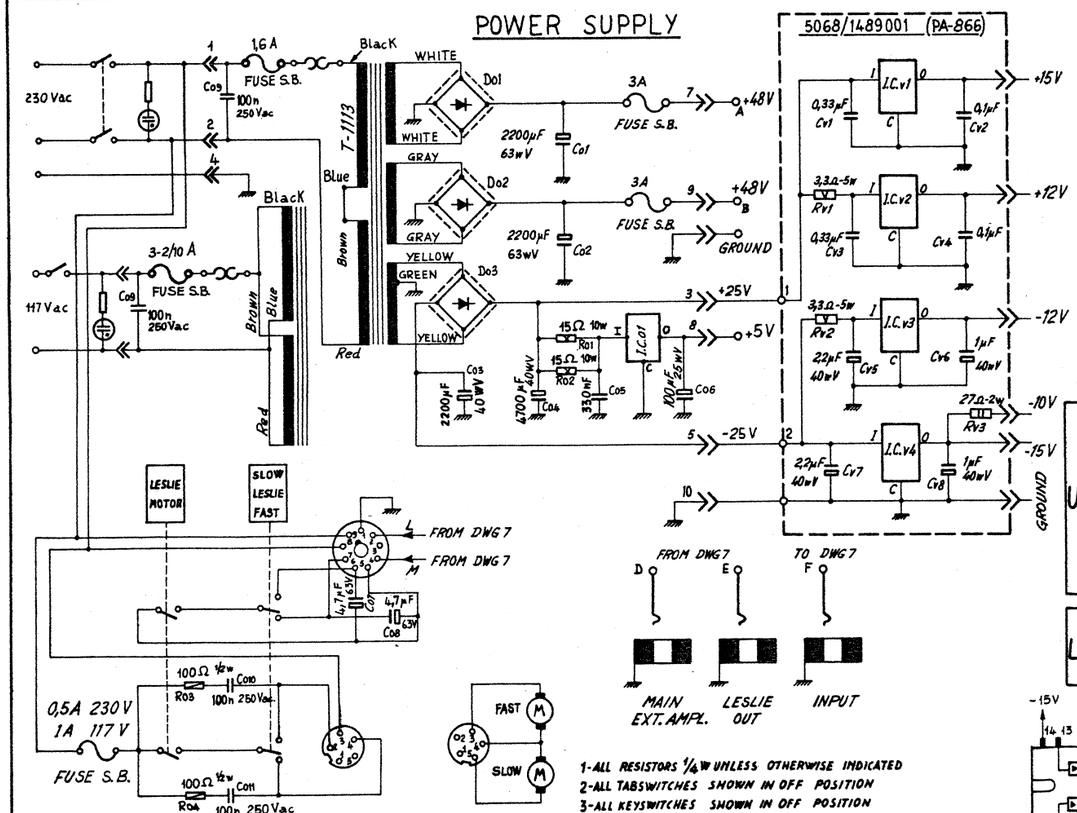
E.D.P. 1124771

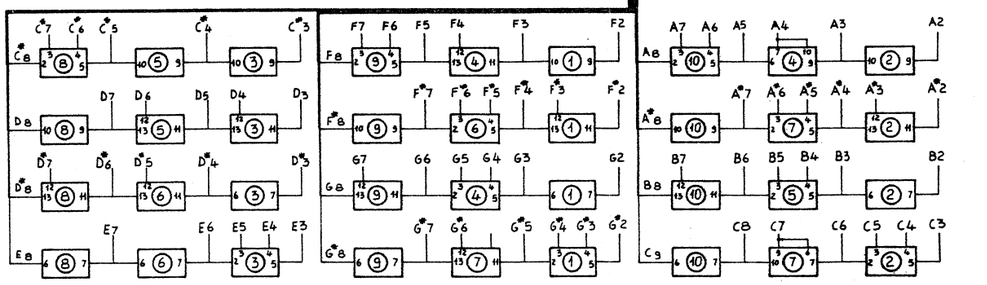
2nd EDITION


PEDAL KEY SWITCHES
PEDAL GATES
BASS FILTER
GENERATORS
U.M. GATES
FLUTE FILTERS
VIBRATO
U.M. KEY SWITCHES
U.M. GATES POLI
POLI FILTERS
DELAY LINE
L.M. KEY SWITCHES
L.M. FILTERS
BASS MONOPHONIC
EASY CHORD
RHYTHMS UNIT
GEN. MONO
MONO MONOPHONIC
MONO FILTERS
MIXER
EXT. IMPUT.
VIBRATO
WHA-WHA FILTERS
MIKE RECORD
MIXER
CROSSOVER
REVERBER
MIXER
CROSSOVER
MIXER
MIXER
MIXER
CROSSOVER
VOLUME CONTROL
AMP. BASS
SWELL PEDAL
VOLUME CONTROL
AMP. TREBLE
AMP. LESLIE
MAIN
EXT. AMP.
LESLIE
EXT. AMP.
MIXER
SOCKET C.B.S.
PA-750 6844/1124741
SWITCHES HEADPHONE - LOUDSPEAKERS
4Ω
4Ω
4Ω
4Ω
1μF
HEADPHONE
POWER SUPPLY
BLOCK DIAGRAM


VIBRATO
5007/1124771 (PA-784)
+12V
2,2n Cr17
120K Rr41
3,9K Rr43
100K Rr45
Qr10
100 μF 15WV Cr21
1μF-25WV Cr16
1μF-25WV Cr15
1μF-25WV Cr18
Qr9
10K Rr37
5K LIM VRr4
47K Rr40
2,2K Rr42
470nF Car
4,7K Rr46
1K Rr47
27K Rr48
120K Rr49
68K Rr36
33K Rr39
10nF 25WV Cr19
Qr11
470Ω Rr44
VIBRATO DELAY
SLOW FAST
VIBRATO
5023/1124771 (PA-791)
FROM DWG 5
TO DWG 7
TO DWG 4


FROM DWG 4
OSCILLATOR
TONE GENERATOR
+5V
+12V
-15V
10Ω Rd2
100Ω VRd1
PITCH
47K Rd3
150 pF Cd1
1,8K Rd4
220Ω Rd7
470 pF Cd6
150 pF Cd2
22K Rd8
1K Rd9
Qd1
47K Rd6
1,8K Rd6
220nF Cd3
Dd1
Dd2
220n Cd4
220n Cd5
I.C.
Da
D#a
Fa
F#a
Aa
A#a
Ca
Ea
Ga
G#a
Ba
C9
NOTE | FREQUENCY
C#a | 4436 Hz
Da | 4700 Hz
D#a | 4976 Hz
Ea | 5272 Hz
Fa | 5588 Hz
F#a | 5920 Hz
Ga | 6272 Hz
G#a | 6644 Hz
Aa | 7040 Hz
A#a | 7458 Hz
Ba | 7902 Hz
C9 | 8372 Hz
6047/1124771 (PA-733/8)


POWER SUPPLY
5068/1489001 (PA-866)
230 Vac
117 Vac
1,6 A FUSE S.B.
3-2/10 A FUSE S.B.
Co9 100n 250Vac
T-1113
BlacK
Blue
Brown
Red
WHITE
GRAY
YELLOW
GREEN
Do1
Do2
Do3
2200μF 63WV Co1
2200μF 63WV Co2
3A FUSE S.B.
3A FUSE S.B.
+48V A
+48V B
GROUND
+25V
+5V
-25V
15Ω 10W Ro1
15Ω 10W Ro2
I.C.01
2200nF Co3
4700nF 40WV Co4
330nF Co5
100nF 25WV Co6
I.C.v1
I.C.v2
I.C.v3
I.C.v4
0,33μF Cv1
3,3Ω-5W Rv1
0,33μF Cv3
3,3Ω-5W Rv2
2,2μF 40WV Cv5
2,2μF 40WV Cv7
4μF Cv2
4μF Cv4
1μF 40WV Cv6
1μF 40WV Cv8
27Ω-2W Rv3
+15V
+12V
-12V
-10V
-15V
GROUND
LESLIE MOTOR
SLOW LESLIE FAST
FROM DWG 7
FROM DWG 7
4,7nF 63WV Co7
4,7nF 63V Co8
100Ω ½W Ro3
Co10 100n 250Vac
100Ω ½W Ro4
Co11 100n 250Vac
0,5A 230V
1A 117V
FUSE S.B.
FAST
SLOW
FROM DWG 7
TO DWG 7
D
E
F
MAIN EXT. AMPL.
LESLIE OUT
INPUT


Ca Da Ea Fa Ga Aa Ba C9
Ca# Da# Fa# Ga# Aa#
Ca7 Ca6 Ca5 Ca4 Ca3
Da8 Da7 Da6 Da5 Da4 Da3
Ea8 Ea7 Ea6 Ea5 Ea4 Ea3
Fa8 Fa7 Fa6 Fa5 Fa4 Fa3 Fa2
Ga8 Ga7 Ga6 Ga5 Ga4 Ga3 Ga2
Aa8 Aa7 Aa6 Aa5 Aa4 Aa3 Aa2
Ba8 Ba7 Ba6 Ba5 Ba4 Ba3 Ba2
C9 C8 C7 C6 C5 C4 C3

| | | |

5011/1124771
(PA-782)

MONOPHONIC
&
EASYCHORD

FROM DWG 3

TO DWG 3

Pin 8 IC 14

Pin 12 IC 14

Pin 3 IC 41

Pin 9 IC 36

Pin 11 IC 20

Pin 11 IC 29

Pin 13 IC 38

Pin 1 IC 30

Pin 1 IC 41

Pin 13 IC 19

Pin 1 IC 37

Pin 12 IC 27

Key down

EASY

CK1

CK2

CKm

K1 K2 K3 K4 K5 K6 K7

| | | | |
|---|---|---|---|
| MOD. | 5230R | | |
| CODE | SE/259 | | |

DWG 2 OF 7

U.M KEYSWITCHES 5003/H24771 (PA-780)

POLL

MONO

FLUTES

+12V

47K×44

4'/H

47K×44

8'/H

U.M. KEYSWITCHES 5008/H24771 (PA-781)

STOP MEMORY

TO DWG 4

TO DWG 2

TO DWG 4

FROM DWG 4

TO DWG 4

TO DWG 6

TO DWG 6

FROM DWG 5

6870/1124741 (PA-705/2)

6873/1124741 (PA-706/2)

6873/1124741 (PA-706/2)

6875/1124741 (PA-708)

188K×44 270K×44

5000/1124771 (PA-778)

2⅔'

4'

5⅓'

8'

16'

TO DWG 5

+12V

27K×44 Rh1÷Rh44

U.M. GATES

FROM DWG 5

IC.n1÷IC.n10

100n×10 Ch1÷Ch10

6116/1124661 (PA-612)

PEDALBOARD KEYSWITCHES

PA-558

PEDALBOARD FILTERS

I.C. 1

BASS GUITAR FILTER

5012/1124771 (PA-788)

PEDAL 16'

PEDAL 8'

SUSTAIN

BASS GUITAR

(PA-856)

EASYCHORD

MEMORY

5033/1124791

FROM DWG 2

L.M. FILTER 5014/1124771 (PA-789)

56nF

FLUTE 8'

FLUTE 4'

DIAP. 8'

PICC. 4'

STRINGS 8'

5015/1124771 (PA-790)

6124/1124651 (PA-629)

TO PARTNER 15

BASS FILTER

TO DWG 7

- ALL RESISTORS 1/4 W UNLESS OTHERWISE INDICATED
- ALL TABSWITCHES SHOWN IN OFF POSITION
- ALL KEYSWITCHES SHOWN IN OFF POSITION
- SEE PARTS LIST FOR COMPONENT PART NUMBERS
- ALL D.C. VOLTAGES MEASURED TO GROUND WITH A VOLTMETER 20'000 Ω/V

| | | | |
|---|---|---|---|
| MOD: 5230R | | SERIAL N° | |
| CODE: SE/259 | DRAWN BY R Bonnelly CHECKED BY | REVISION | |
| | | DATE 23-5-78 | |

# PIANO GATES

5004/1124771 (PA-779)

# POLI FILTERS

5003/1124771 (PA-783)

# POLI REG.

5017/1124771 (PA-799)

5002/1124771 (PA-788)

5015/1124771 (PA-813)

FROM F2 TO C5 6871/1124741 PA-710 (Ra1=Ra2=560Ω)

FROM C#5 TO C6 6870/1124741 PA-709 (Ra1-Ra2=2K2)

560K x 90 Ri 1÷Ri 20

560K x 44 Ri 21÷Ri 64

560K x 44 Ri 65÷Ri 108

560K x 44 Ri 108÷Ri 151

5006/1124771 (PA-707/4)

6871/1124741 (PA-706)

6871/1124741 (PA-706)

6871/1124741 (PA-706)

560K x 45

100Ω x 45

220Ω Ri 153

100Ω Ri 154

390Ω Ri 155

1K2 Ri 158

-15V

100 µF 25 WV

FROM DWG 3 (T4)

FROM DWG 3 (T7)

5005/1124771 (PA-707-3)

6872/1124741 (PA-706H)

6872/1124741 (PA-706H)

6872/1124741 (PA-706H)

560K x 90

33K x 44 Ri 156÷Ri 199

33K x 44 Ri 200÷Ri 243

+12V

100 µF 25V

PIANO | HARPSICHORD | HONKY TONK | STRINGS | COUPLER

BRILLIANCE

SUSTAIN

CANCEL

TO DWG 3

TO DWG 7

TO DWG 1

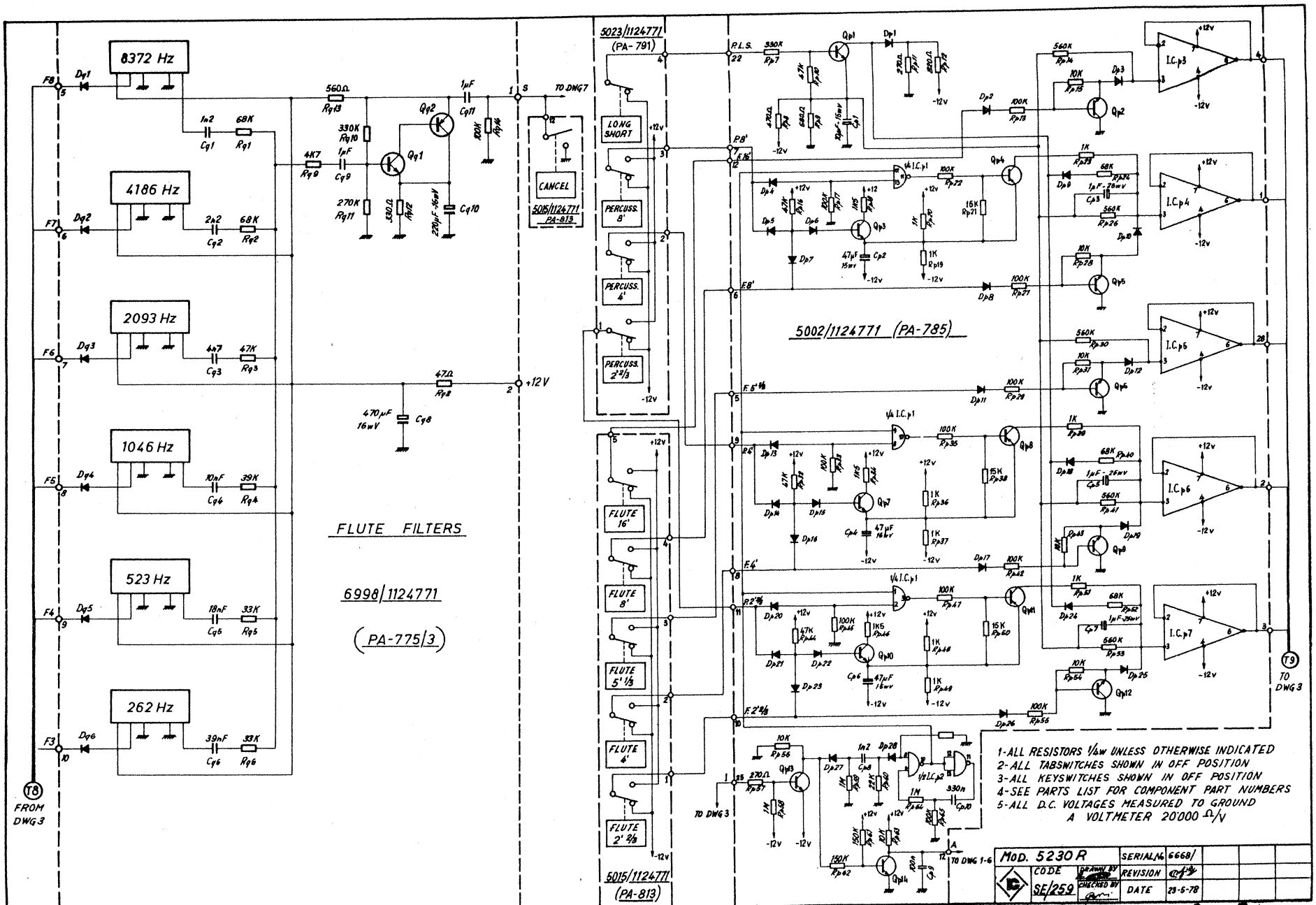
FROM DWG 1

ALL RESISTORS 1/4 W UNLESS OTHERWISE INDICATED - SEE PARTS LISTS FOR COMPONENT PARTS NUMBERS

ALL TABSWITCHES SHOWN IN OFF POSITION - ALL D.C. VOLTAGES MEASURED TO GROUND WITH A VOLTMETER 20'000 Ω/V

ALL KEYSWITCHES SHOWN IN OFF POSITION

| | | | |
|---|---|---|---|
| MOD: 5230 R | | | SERIAL |
| CODE: SE/259 | DRAWN BY PR Baudi | CHECKED BY | REVISION |
| | | | DATE |


8372 Hz
4186 Hz
2093 Hz
1046 Hz
523 Hz
262 Hz
FLUTE FILTERS
6998/1124771
(PA-775/3)
FROM DWG 3
TO DWG 7
CANCEL
5015/1124771 PA-813
5023/1124771 (PA-791)
LONG SHORT
PERCUSS. 8'
PERCUSS. 4'
PERCUSS. 2'2/3
FLUTE 16'
FLUTE 8'
FLUTE 5'1/3
FLUTE 4'
FLUTE 2'2/3
5015/1124771 (PA-813)
5002/1124771 (PA-785)
TO DWG 3
TO DWG 1-6
1-ALL RESISTORS 1/4w UNLESS OTHERWISE INDICATED
2-ALL TABSWITCHES SHOWN IN OFF POSITION
3-ALL KEYSWITCHES SHOWN IN OFF POSITION
4-SEE PARTS LIST FOR COMPONENT PART NUMBERS
5-ALL D.C. VOLTAGES MEASURED TO GROUND
A VOLTMETER 20'000 Ω/V
MOD. 5230R
SERIAL No 6668/
CODE SE/259
DRAWN BY
CHECKED BY
REVISION
DATE 23-5-78

FROM DWG 3

TO DWG 3

FROM DWG 5

TO DWG 7

AY-1-1313

I.C.r 9

I.C.r 10

+12V

-15v

100nF

OR.A

B.B.

OR.B

B.C.

OR.C

B.D.

OR.D

SAX

TROMB.

OBOE

BENJO

MANDOL.

VIOLINO

ACCORD.

CELLO

CLARINO

5007/1124771 (PA-784)

5018/1124771 (PA-800)

5002/1124771 (PA-785)

5019/1124771 (PA-786)

5020/1124771 (PA-801)

6997/1124771 (PA-651/1)

5015/1124771 (PA-813)

PITHC

VIBRATO

SLIDE

WHA-WHA MONO

OFF WHA-WHA ON

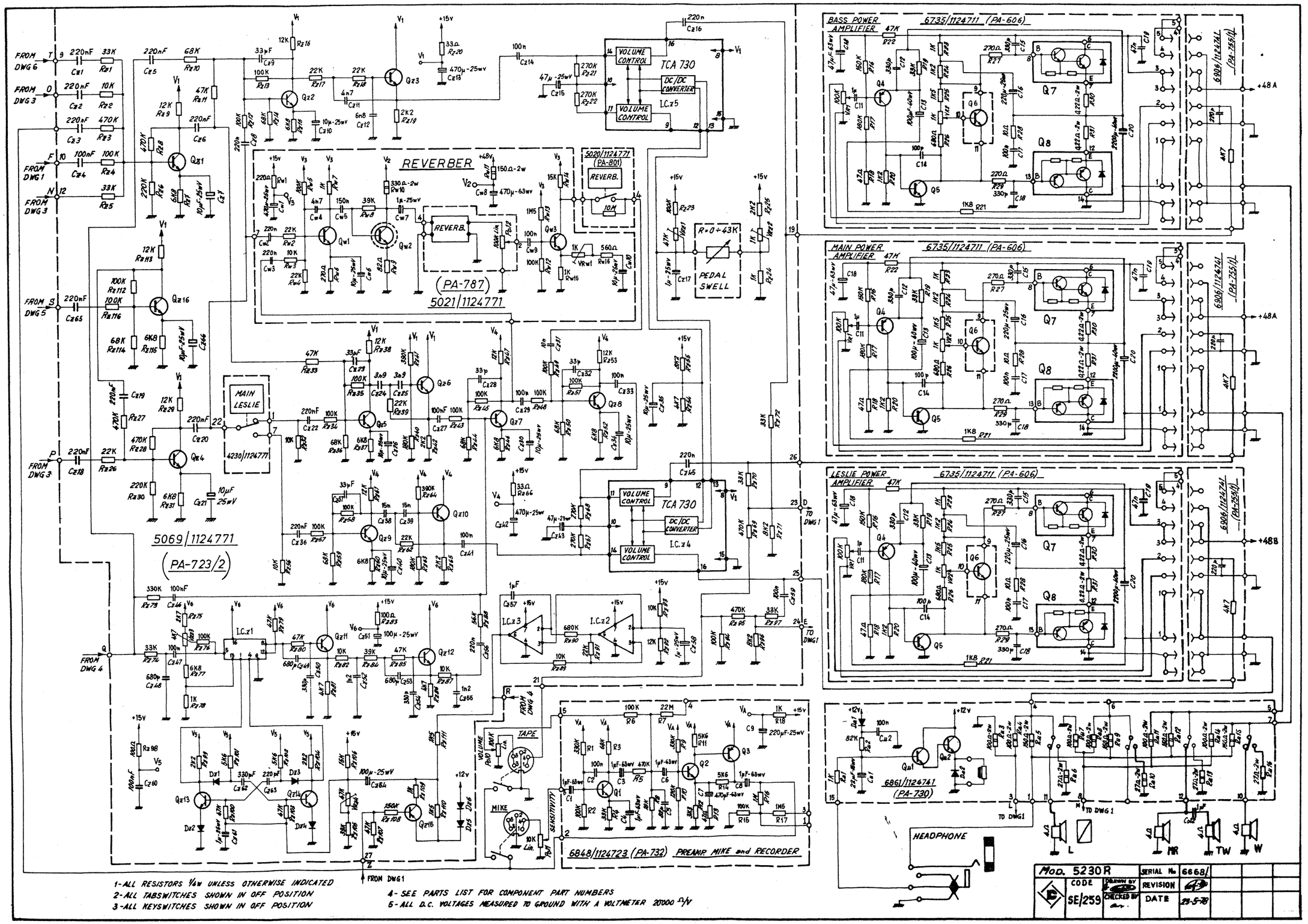
CANCEL

VOLUME

TIMER

1- ALL RESISTORS 1/4W UNLESS OTHERWISE INDICATED
2- ALL TABSWITCHES SHOWN IN OFF POSITION
3- ALL KEYSWITCHES SHOWN IN OFF POSITION
4- SEE PARTS LIST FOR COMPONENT PART NUMBERS
5- ALL D.C. VOLTAGES MEASURED TO GROUND WITH A VOLTMETER 20000 Ω/V

| | | | |
|---|---|---|---|
| MOD. 5230R | | SERIAL No | |
| CODE SE/259 | DRAWN BY / CHECKED BY | REVISION | |
| | | DATE 29-5-78 | |


REVERBER
(PA-787)
5021/1124771
5020/1124771 (PA-801)
REVERB.
TCA 730
VOLUME CONTROL
DC/DC CONVERTER
I.C.x5
I.C.x4
I.C.x3
I.C.x2
I.C.x1
PEDAL SWELL
R=0÷43K
MAIN LESLIE
4230/1124771
5069/1124771
(PA-723/2)
BASS POWER AMPLIFIER
6735/1124711 (PA-606)
MAIN POWER AMPLIFIER
LESLIE POWER AMPLIFIER
6906/1124741 (PA-735/1)
+48 A
6861/1124741 (PA-730)
6848/1124723 (PA-732) PREAMP MIKE and RECORDER
TAPE
MIKE
HEADPHONE
FROM DWG 1
FROM DWG 2
FROM DWG 3
FROM DWG 4
FROM DWG 5
FROM DWG 6
TO DWG 1
TO DWG 2
TO DWG 3
TO DWG 4
1-ALL RESISTORS ¼w UNLESS OTHERWISE INDICATED
2-ALL TABSWITCHES SHOWN IN OFF POSITION
3-ALL KEYSWITCHES SHOWN IN OFF POSITION
4- SEE PARTS LIST FOR COMPONENT PART NUMBERS
5- ALL D.C. VOLTAGES MEASURED TO GROUND WITH A VOLTMETER 20000 Ω/V
Mod. 5230R
SERIAL No 6668/
CODE SE/259
DRAWN BY
CHECKED BY
REVISION
DATE 23-5-78

# 5230 R

TRANSISTORS (Q) & DIODES (D) LIST (1)

| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| CHASSIS | POWER SUPPLY CHASSIS (DWG 1/SE 259) | | 8000/1124771 |
| I.C.o1 | Series Stabilizer | LM 309K NATIONAL | W/1214 |
| Do1-Do2-Do3 | Rectifier Bridge | B 80 C 3700 | B/1209 |
| PA 866 | STABILIZER (DWG 1/SE 259) | | 5068/1489001 |
| I.C.v1 | Series Stabilizer + 15V | LM 7815T NATIONAL | W/1224 |
| I.C.v2 | Series Stabilizer + 12V | LM 7812T NATIONAL | W/1223 |
| I.C.v3 | Series Stabilizer - 12V | LM 7912T NATIONAL | W/1225 |
| I.C.v4 | Series Stabilizer - 15V | LM 7915T NATIONAL | W/1226 |
| PA 606 | POWER AMPLIFIER (DWG 7/SE 259) | | 6735/1124711 |
| Q4 | Preamplifier | BC 154 | W/1500 |
| Q5 | Driver Amplifier | BC 207 A-B | W/1401 |
| Q6 | Temperature Compensator | BC 107 A-B | W/1403 |
| Q7-Q8 | Power Darlington | PHILIPS BDX 62-63<br>MOTOROLA MJ 900-1000 | W/2202 |
| PA 732 | MIXER MAIN-MIKE (DWG 7/SE 259) | | 6848/1124723 |
| Q1 | Mike Preamplifier | BC 209-B red dot | W/1413 |
| Q2 | Mixer Preamplifier | BC 209-B red dot | W/1413 |
| Q3 | Mixer Preamplifier | BC 154 | W/1500 |
| PA 733/8 | TONE GENERATOR (DWG 1/SE 259) | | 6047/1124771 |
| I.C.d1 | Oscillator | SN 29730 N | W/1009 |
| I.C.d2 | Top Octave Synthesizer | AY-1-0212 G.I.E. | W/1105 |
| Qd1 | Buffer | BC 208-B-C | W/1404 |
| Dd1 + Dd3 | Diodes | BA 130 FAIRCHILD | B/1003 |

# 5230 R

TRANSISTORS (Q) & DIODES (D) LIST



| Schem. Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| **PA 784** | **ELECTRONIC MONOPHONIC (DWG 1-6/SE 259) & VIBRATO** | | **5007/1124771** |
| I.C.r1÷I.C.r3 | QUAD 2 - Input NAND Gate | 4011 FAIRCHILD | W/1150 |
| I.C.r5 | Hex Inverter | F 4069 FAIRCHILD | W/1169 |
| I.C.r4-6-7 | QUAD 2 - Input AND Gate | 4081 FAIRCHILD | W/1156 |
| I.C.r8 | Frequency Dividers | 25002 SESCOSEM | W/1165 |
| I.C.r9 | Top Octave Synthesizer | AY-1-0212 G.I.E. | W/1105 |
| I.C.r10 | Priority Latching Circuit | AY-1-1313 G.I.E. | W/1108 |
| I.C.r11 | Oscillator | SN 29730 TEXAS | W/1009 |
| Qr1-5-7-8 | Buffers | BC 209-C | W/1426 |
| Qr2-Qr9 | Vibrato Oscillator | BC 209-B | W/1407 |
| Qr3-Qr10 | Vibrato Buffer | BC 209-B | W/1407 |
| Qr4-Qr11 | Vibrato Delay | BC 209-B | W/1407 |
| Qr6 | Control | BC 154 | W/1500 |
| Dr1 ÷ Dr7 | Diodes | D 525 B TEXAS | B/1000 |
| **PA 782** | **MONOPHONIC & EASYCHORD (DWG 2/SE 259)** | | **5011/1124771** |
| I.C.c1 | 1-OF-10 Decoder | F 4028 | W/1168 |
| I.C.c2-3-4-5 6-7-42-43 | 8 - Input Multiplexer with 3-State Outputs | F 4512 | W/1167 |
| I.C.c9-11-13-28-36 | QUAD Bilateral Switches | 4016 | W/1164 |
| I.C.c8-10-12 | Hex D Flip-Flop | 40174 | W/1161 |
| I.C.c14-16 | QUAD 2 - Input AND Gate | 4081 | W/1156 |
| I.C.c15-17 | Frequency Dividers | 25002 | W/1165 |
| I.C.c16-38-41 | Hex Inverters | F 4069 | W/1169 |
| I.C.c18-24 | Dual 1-OF-4 Decoders | F 4555 PC | W/1171 |
| I.C.c19-21-27-30-40 | QUAD 2 - Input NAND Gate | 4011 | W/1150 |
| I.C.c20-35-39 | Triple 3 - Input NAND Gate | 4023 | W/1152 |
| I.C.c22 I.C.c23 | 4 Bit Syn UP-DOWN Binary Counters | 40193 | W/1162 |
| I.C.c29 | Dual 4 Bit Static Shift Register | F 4015 PC | W/1170 |
| I.C.c31-32-33-34 | Dual D Flip-Flop | 4013 | W/1157 |
| I.C.c37 | Dual JK Flip-Flop | 4027 | W/1153 |
| I.C.c25 | Hex Inverting Buffer | 4049 | W/1155 |
| Dc1 ÷ Dc32 | Diodes | D 525 B TEXAS | B/1000 |

| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 781 | KEYSWITCH BOARD L.M. (DWG 3/SE 259) | | 5008/1124771 |
| D1 ÷ D25 | Diodes | D 525 B | B/1000 |
| PA 780 | KEYSWITCH BOARD U.M. (DWG 3/SE 259) | | 5009/1124771 |
| D1 ÷ D131 | Diodes | BA 130 FAIRCHILD | B/1003 |
| PA 612 | SUSTAIN PEDALBOARD (DWG 3/SE 259) | | 6716/1124661 |
| I.C.g1 | Divider | G.I.E.AY-1-5050 | W/1100- W/1101 |
| Qg1 | Pulse Amplifier | BC 208-B-C | W/1404 |
| Qg3 - Qg6 | Buffers | BC 209-B | W/1407 |
| Qg7 | Modulator | | |
| Qg2 | Reset | BC 287 | W/1702 |
| Qg4 | Preamplifier | BC 209-B red dot | W/1413 |
| | | BC 109-B red dot | W/1415 |
| Qg5 | Bass Guitar Filter | BC 209-B | W/1407 |
| Dg1 ÷ Dg13 | Diodes | D 525 B-BA 130 | B/1000- B/1003 |
| Dg14÷Dg26 | Diodes | 1N 914 - 1N 4148 | B/1002 |
| Dg27÷Dg33 | Diodes | D 525 B-BA 130 | B/1000- B/1003 |
| PA 778 | U.M. GATES (DWG 3/SE 259) | | 5000/1124771 |
| I.C.h1÷I.C.h10 | Frequency Dividers | SA 1005 ITT | W/1114 |
| PA 705/2 | GATE MODULE (DWG 3/SE 259) | | 6870/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| Q1 | Switch | BC 209-B | W/1407 |
| D1 - D2 | Diodes | D 525 B | B/1000 |

| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 706/2 | GATE MODULE (DWG 3/SE 259) | | 6873/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| D 1 | Diode | D 525 B | B/1000 |
| PA 707 | GATE MODULE (DWG 3/SE 259) | | 6874/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| D 1 | Diode | D 525 B | B/1000 |
| PA 708 | GATE MODULE (DWG 3/SE 259) | | 6875/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| D 1 | Diode | D 525 B | B/1000 |
| PA 789 | L.M. FILTERS (DWG 3/SE 259) | | 5014/1124771 |
| I.C.f1 | Preamplifier | SN 76131 red dot | W/1213 |
| Qf1 | Preamplifier Flutes | BC 209-B red dot | W/1413 |
| Qf2 | Strings | BC 209-C SESCOSEM | W/1426 |
| Qf3 | Piccolo | BC 209-C SESCOSEM | W/1426 |
| Qf4 | Preamplifier | BC 209-B red dot | W/1413 |
| PA 779 | PIANO GATES (DWG 4/SE 259) | | 5004/1124771 |
| Di1÷Di44 | Diodes | D 525 B TEXAS | B/1000 |
| PA 706 | GATE MODULE (DWG 4/SE 259) | | 6871/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |

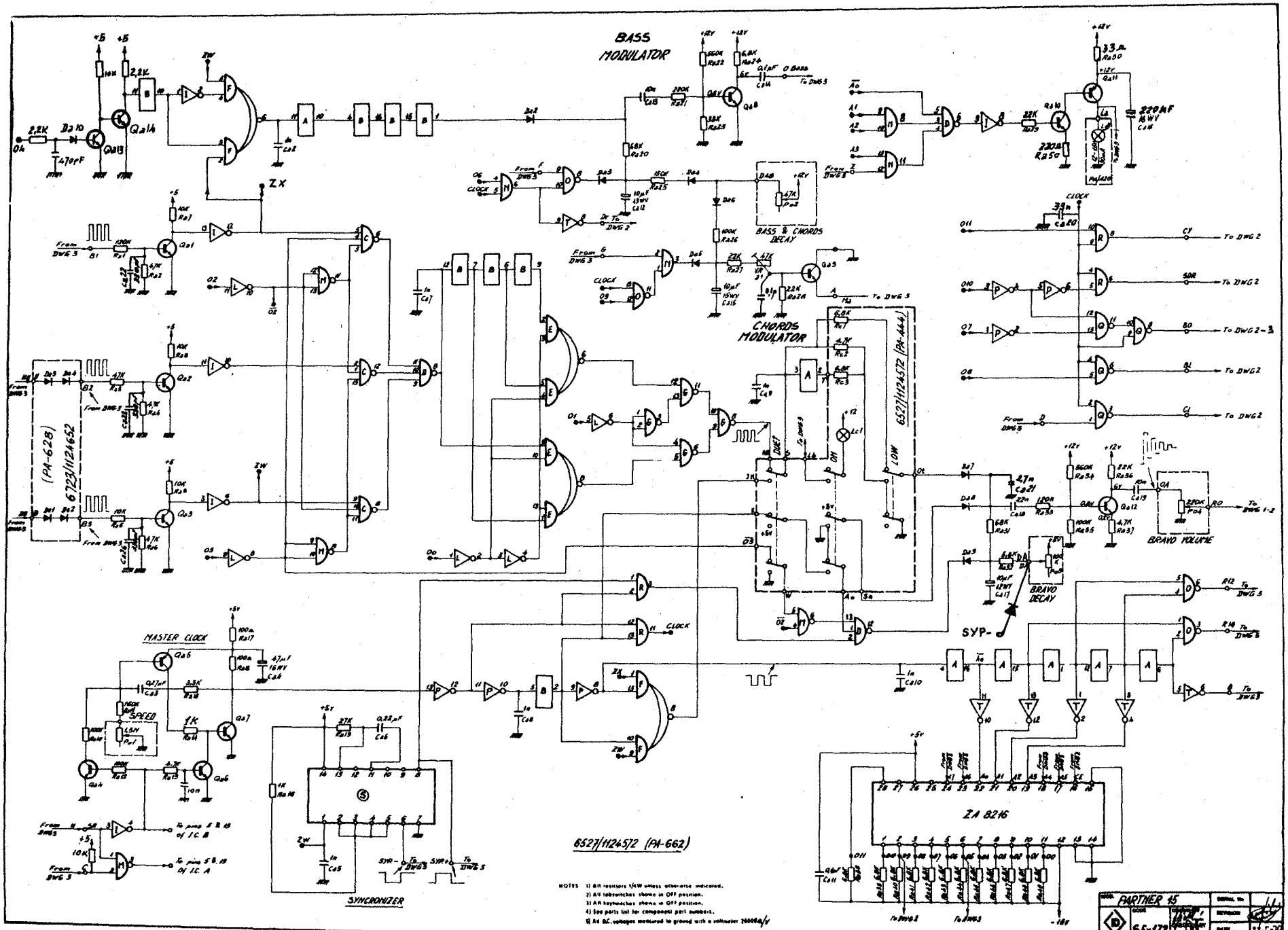
| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| **PA 706/1** | **GATE MODULE (DWG 4/SE 259)** | | 6872/1124741 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| **PA 707/3** | **GATE MODULE (DWG 4/SE 259)** | | 5005/1124771 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| **PA 707/4** | **GATE MODULE (DWG 4/SE 259)** | | 5006/1124771 |
| I.C.1 | Gate with 12 emitters | TDA 0470 D | W/1215 |
| **PA 710** | **SHAPER GATE ENVELOPE (DWG 4/SE 259)** | | 6877/1124741 |
| D1 ÷ D12 | Diodes | BA 130 | B/1003 |
| **PA 710/1** | **SHAPER GATE ENVELOPE (DWG 4/SE 259)** | | 6878/1124741 |
| D1 ÷ D12 | Diodes | BA 130 | B/1003 |
| **PA 783** | **POLI FILTERS (DWG 4/SE 259)** | | 5003/1124771 |
| Qm1 | Piano Preamplifier | BC 209-B red dot | W/1413 |
| Qm2 - Qm4 | Preamplifiers | BC 209-B red dot | W/1413 |
| Qm5 | Mixer | BC 209-B red dot | W/1413 |
| Qm3 - Qm6<br>Qm7 - Qm8 | Switches | BC 209-B | W/1407 |
| Dm1 ÷ Dm7 | Diodes | D 525 TEXAS | B/1000 |

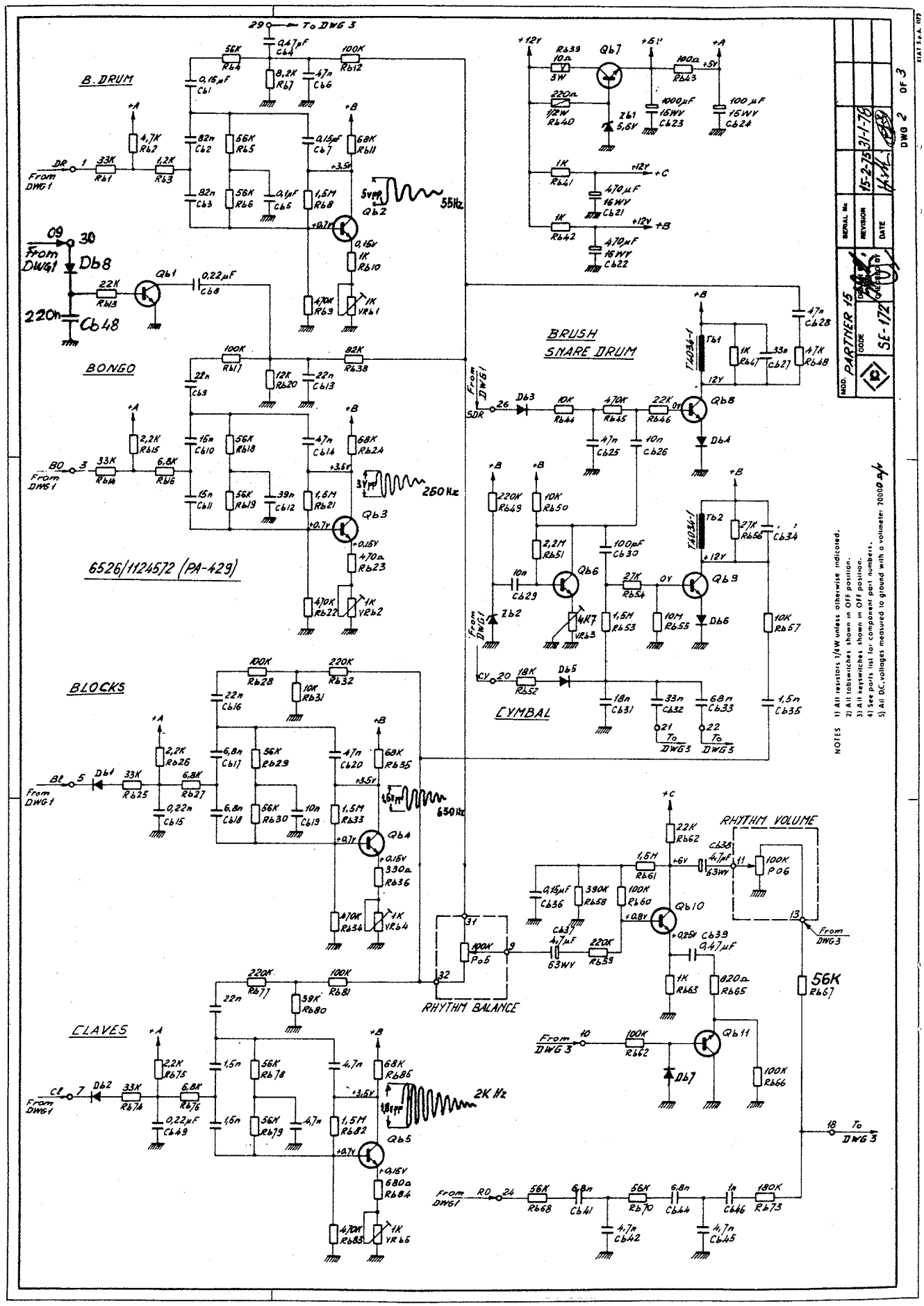
| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| **PA 785** | **FLUTE & PERCUSSION COMANDS (DWG 4-5-6/SE 259)** | | **5002/1124771** |
| I.C.p1-I.C.p2 | QUAD 2 - Input NAND Gate | 4011 | W/1150 |
| I.C.p3+I.C.p7 | Buffers | SN 72741 P | W/1210 |
| I.C.p8 | Single Timing Circuit | µA 555 | W/1217 |
| Qp1-2-3-5-6-7-9-10-12-13-14-15-16 | Switches | BC 209-B | W/1407 |
| Qp4-8-11 | Switches | BC 154 | W/1500 |
| Qp17 | Buffer | BC 209-B | W/1407 |
| Qp18 | Buffer | BC 207-A-B | W/1401 |
| Dp1+Dp30 | Diodes | D 525 B | B/1000 |
| **PA 800** | **SPECIAL EFFECT COMANDS (DWG 6/SE 259)** | | **5018/1124771** |
| I.C.t1-I.C.t2 | Dual JK Flip-Flop | 4027 | W/1153 |
| I.C.t3 | QUAD 2 - Input AND Gate | 4081 | W/1156 |
| I.C.t4 | QUAD 2 - Input NAND Gate | 4011 | W/1150 |
| **PA 651/1** | **WHA-WHA MONO (DWG 6/SE 259)** | | **6997/1124771** |
| I.C.s1 | Wha-Wha Mono | SN 76131 White dot | W/1212 |
| Qs1-Qs2 | Dual FET | TIS 70 | W/2001 |
| Qs3-Qs4 | Multivibrator | BC 208-B-C | W/1404 |
| Qs5 | Buffer | BC 208-B-C | W/1404 |
| Qs6 | Switch | BC 208-B-C | W/1404 |
| Qs7 | Pulse Driver | BC 208-B-C | W/1404 |
| **PA 786** | **SPECIAL EFFECTS (DWG 6/SE 259)** | | **5019/1124771** |
| Qv1-3-5-8-10-11-13 | Buffers | BC 209-B | W/1407 |
| Qv2 | Clarinet Filter | BC 209-B | W/1407 |
| Qv4 | Trombone Filter | BC 209-B | W/1407 |
| Qv6-7-12 | Modulators | BC 209-C SESCOSEM | W/1426 |
| Qv9 | Preamplifier Mono | BC 209-B red dot | W/1413 |
| Qv14 | Oboe Filter | BC 209-B | W/1407 |
| Dv1 + Dv12 | Diodes | D 525 B | B/1000 |

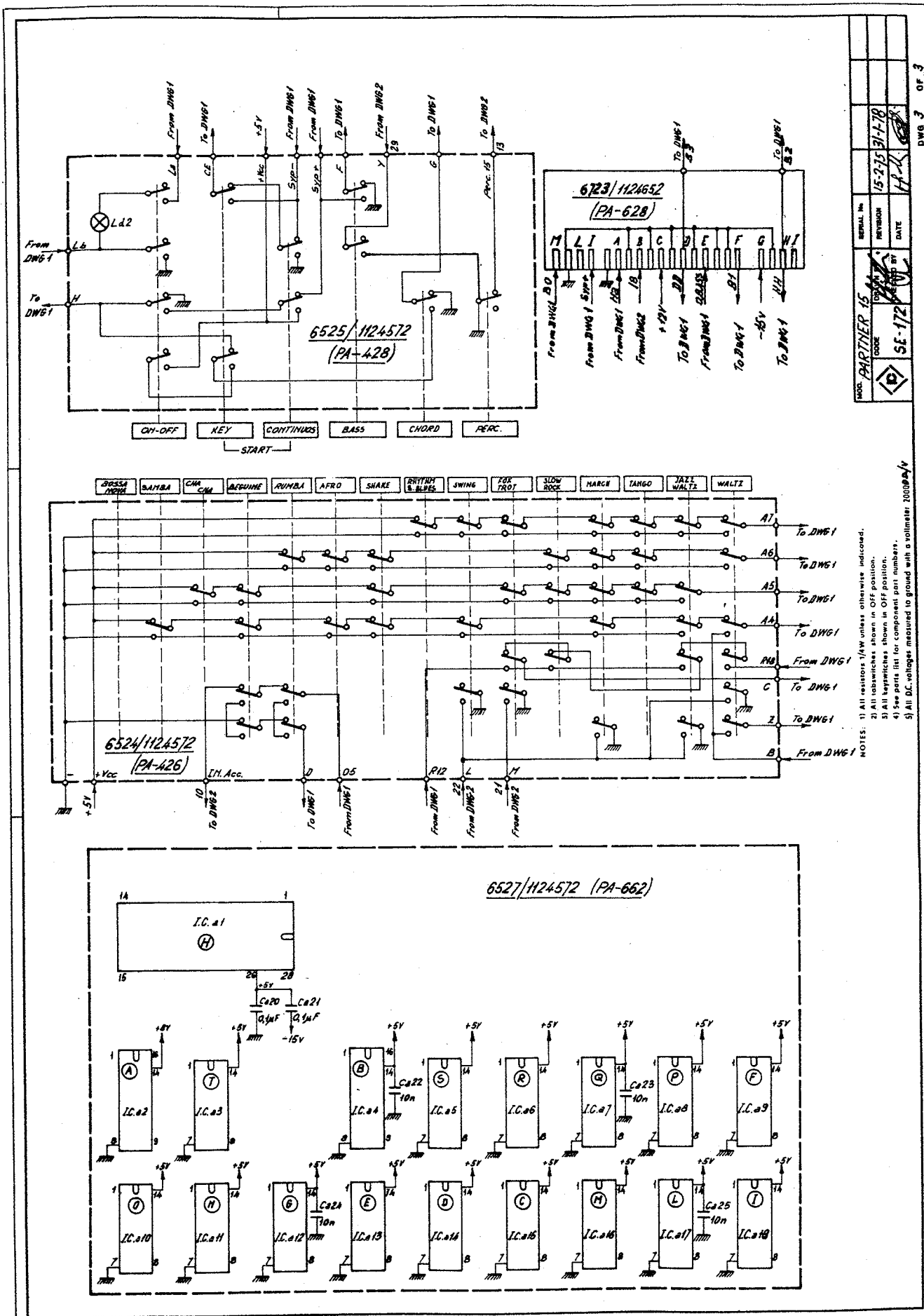
# 5230 R

TRANSISTORS (Q) & DIODES (D) LIST (7)

| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 787 | REVERBATION (DWG 7/SE 259) | | 5021/1124771 |
| Qw1 | Reverb Preamplifier | BC 209-B | W/1407 |
| Qw2 | Reverb Driver | BC 286 | W/1601 |
| Qw3 | Reverb Preamplifier | BC 209-B red dot | W/1413 |
| PA 730 | HEADPHONE - LOUDSPEAKER SWITCH (DWG 7/SE 259) | | 6861/1124741 |
| Qu1 | Darlington | BC 209-B | W/1407 |
| Qu2 | Darlington | BC 286 | W/1601 |
| Du1 - Du2 | Diodes | BA 130 | B/1003 |
| PA 723/2 | MAIN-LESLIE PREAMPLIFIER (DWG 7/SE 259) | | 5069/1124771 |
| I.C.z1 | Bucket Brigade Delay Line | TDA 1022 | W/1113 |
| I.C.z2-3 | Oscillators | SN 72741 N | W/1210 |
| I.C.z4-5 | D.C. Volume and Balance Control Circuit | TCA 730 | W/1216 |
| Qz1-4-16 | Mixer | BC 209-B red dot | W/1413 |
| Qz5-7-8-9-2 | Mixers | BC 209-B | W/1407 |
| Qz3 | Bass Crossover | BC 209-B | W/1407 |
| Qz6 | Treble Crossover | BC 209-B | W/1407 |
| Qz10 | Leslie Crossover | BC 209-B | W/1407 |
| Qz11-Qz12 | Emitter Followers | BC 209-B | W/1407 |
| Qz13-Qz14 | Oscillators | BC 209-B | W/1407 |
| Qz15 | Switch | BC 154 | W/1500 |
| Dz1 + Dz6 | Diodes | BA 130 | B/1003 |
| PA 775/3 | FLUTE FILTERS (DWG 5/SE 259) | | 6998/1124771 |
| H.C.m1 | Active Hybrid Filter | (fo = 8372 Hz) | W/2306 |
| H.C.m2 | " " " | (fo = 4186 Hz) | W/2305 |
| H.C.m3 | " " " | (fo = 2093 Hz) | W/2304 |
| H.C.m4 | " " " | (fo = 1046 Hz) | W/2303 |
| H.C.m5 | " " " | (fo = 523 Hz) | W/2302 |
| H.C.m6 | " " " | (fo = 262 Hz) | W/2301 |
| Qm1 | Preamplifier | BC 209-B red dot | W/1413 |
| Qm2 | Preamplifier | BC 225 S.G.S. | W/1500 |
| Dm1 + Dm6 | Diodes | D 525 A TEXAS | B/1001 |


BASS MODULATOR
CHORDS MODULATOR
BASS & CHORDS DECAY
BRAVO VOLUME
BRAVO DECAY
MASTER CLOCK
SPEED
SYNCHRONIZER
(PA-628) 6723/1124652
6527/1124572 (PA-444)
6527/1124572 (PA-662)
ZA 8216
SYP-
PARTNER 15
SE-172
DWG 1 of 3


B. DRUM
BONGO
6526/1124572 (PA-429)
BRUSH
SNARE DRUM
CYMBAL
BLOCKS
CLAVES
RHYTHM VOLUME
RHYTHM BALANCE
To DWG 3
From DWG 1
From DWG 3
55Hz
250 Hz
650 Hz
2K Hz
MOD. PARTNER 15
CODE SE-172
DWG 2 OF 3
NOTES
1) All resistors 1/4W unless otherwise indicated.
2) All tabswiches shown in OFF position.
3) All keyswiches shown in OFF position.
4) See parts list for component part numbers.
5) All DC voltages measured to ground with a voltmeter 20000 Ω/V




NOTES:
1) All resistors 1/4W unless otherwise indicated.
2) All tabswitches shown in OFF position.
3) All keyswitches shown in OFF position.
4) See parts list for component part numbers.
5) All D.C. voltages measured to ground with a voltmeter 20000Ω/V

| MOD. PARTNER 15 | REVISION | 15-2-75 | 31-1-78 |
|---|---|---|---|
| CODE SE-172 | DRAWN | | |
| | CHECKED BY | | |
| | DATE | | |

DWG. 3 OF 3

# Model *PARTNER 15* TRANSISTORS (Q) & DIODES (D) LIST (1)

| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 662 | CLOCK BOARD (DWG 1-3/SE 172) | | 6527/1124572 |
| Qa1÷Qa3 | Interface transistors..... | BC 208 BC..... | W/1404 |
| Qa4÷Qa6 | Stop Start Control..... | BC 109 B..... | W/1409 |
| Q a 5 | Oscillator..... | BC 154..... | W/1500 |
| Q a 11 | Lamp Driver..... | | |
| Q a 7 | Oscillator..... | BC 208 BC..... | W/1404 |
| Q a 10 | Lamp Driver..... | BC 109 B..... | W/1409 |
| Qa13-Qa14 | Buffers..... | | |
| Q a 9 | Chord Modulator..... | MISTRAL BC 209 C..... | W/1426 |
| Qa8-Qa12 | Preamplifiers..... | BC 209 B..... | W/1407 |
| | | BC 109 B..... | W/1409 |
| Da1÷Da12 | Diodes..... | IX 9809..... | B/1000-B/1001 |
| ICa7-ICa10 | TTL-Quadruple 2-Input Positive Nand Gates | SN 7400..... | W/1000 |
| ICa12-ICa16 | TTL-Quadruple 2-Input Positive Nand Gates | | |
| ICa6-ICa11 | TTL-Quadruple 2-Input Positive and Gates | SN 7408..... | W/1001 |
| ICa3-ICa8 | TTL-Hex Inverters..... | SN 7404..... | W/1004 |
| ICa17-ICa18 | TTL-Hex Inverters..... | | |
| ICa14-ICa15 | TTL-Triple 3-Input Positive Nand Gates | SN 7410..... | W/1005 |
| ICa9-ICa13 | TTL-Dual-2-Wide 2-Input And -or-Invert Gates | SN 7451..... | W/1006 |
| ICa5 | TTL-Restriggerable Monostable Multivibrators with Clear | SN 74122..... | W/1007 |
| ICa2-ICa4 | TTL-Dual 3+1 Flip-Flops with Clear | SN B 748-F..... | W/1008 |
| ICa1 | ROM..... | ..... | W/1102 W/1103 |
| PA 628 | PLUG BOARD (DWG 1-3 / SE 172) | | 6723/1124652 |
| De1÷De4 | Diodes..... | SGS - IX 9809..... | B/1000-B/1001 |

# Model *PARTNER 15* TRANSISTORS (Q) & DIODES (D) LIST



| Schem.Ref. | Circuit | Type | Part Code |
|---|---|---|---|
| PA 429 | RHYTHM UNIT GENERATOR BOARD (DWG 2 / SE 172) | | 6526/1124572 |
| Q b 1<br>Q b 2<br>Q b 3<br>Q b 4<br>Q b 5<br>Q b 6 | Switch Transistor.....<br>Bass Drum Oscillator.....<br>Bongo Oscillator.....<br>Blocks Oscillator.....<br>Claves Oscillator.....<br>Noise Preamplifier..... | BC 209 - B.....<br>BC 239 - B..... | W/1407 |
| Q b 7 | Stabilizer Transistor..... | BC 286.....<br>SGS FAIRCHILD..... | W/1601 |
| Q b 8<br>Q b 9 | Brush Filter.....<br>Cymbal Filter..... | BC 209 - B.....<br>BC 239 - B..... | W/1407 |
| Q b 11 | Accent Switch Transistor..... | Mistral BC 209 - C..... | W/1426 |
| Q b 10 | Rhythm Preamplifier..... | BC 209 - B red dot.....<br>BC 239 - B red dot..... | W/1413 |
| Db1÷Db8 | Diodes..... | SGS - IX 9809..... | B/1000 - B/100 |
| Z b 1 | Voltage Reference-Diode Zener (5,6V-400mA) | ITT STANDARD.....<br>MULLARD.....<br>IRCI..... | B/1309 |
| Z b 2 | Noise Generator-Diode Zener.. | IZ-9824..... | B/1600 |